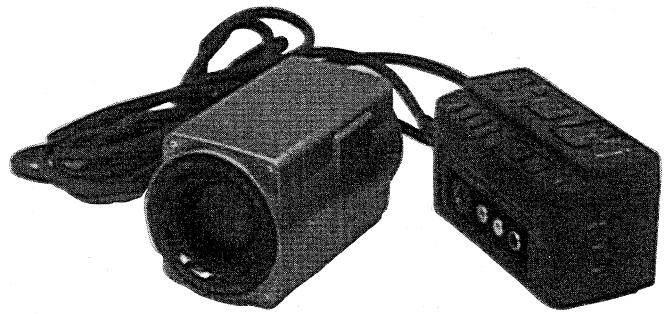
CVX-V18NS/V18NSP

SERVICE MANUAL

US Model
Canadian Model
CVX-18NS
AEP Model
CVX-V18NSP



NTSC model: CVX-V18NS
PAL model : CVX-V18NSP

Printed wiring boards and schematic diagrams are not mentioned because mounted boards are replaced to repair this model.

SPECIFICATIONS

System

Video signal
CVX-V18NS: NTSC color
CVX-V18NSP: PAL colour
Image device
1/4 inch color CCD,
CVX-V18NS: 470,000 pixel (total)
CVX-V18NSP: 570,000 pixel (total)
Lens
f=4.1-73.8 mm, x18 power zoom
F1.4-2.9
filter ø37mm
Minimum illumination
0.7 lux (at 25 IRE)
0 lux (when using IR light)
Illumination range
0.7 to 100,000 lux
Recommended illumination
more than 100 lux
Power requirement
7.2 V
Power consumption
approx. 2.2 W
When using IR light: approx. 3.2 W
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to 140°F)
Dimensions (w x h x d)
Camera: approx. 63 x 66 x 115 mm ($2\,^1/_2$ x $2\,^5/_8$ x $4\,^5/_8$ in.)
Main unit: approx. 50 x 59 x 110 mm ($2 \times 2\,^3/_8 \times 4\,^3/_8$ in.)
Cord length
approx. 3 m
Mass
Camera: approx. 343 g (12 oz)
Main unit: approx. 153 g (5 oz)
MIC input jack
Stereo minijack 0.388 mV
Low impedance with DC 2.5 to 3.5 V, output impedance 6.8 kilohms

Output jacks

Video output
Phono jack (1)
Luminance signal:
1 Vp-p, 75 ohms, unbalanced
Audio output
Phono jacks (2: stereo L and R)
327 mV (at output impedance 47 kilohms), impedance less than 2.2 kilohms)
S video output
4-pin mini DIN (1)
Luminance signal:
1 Vp-p, 75 ohms, unbalanced
Chrominance signal:
CVX-V18NS: 0.286 Vp-p, 75 ohms, unbalanced
CVX-V18NSP: 0.3 Vp-p, 75 ohms, unbalanced

Supplied accessories

Adaptor (1)
Operating instructions (1)

Design and specifications are subject to change without notice.

COLOR VIDEO CAMERA

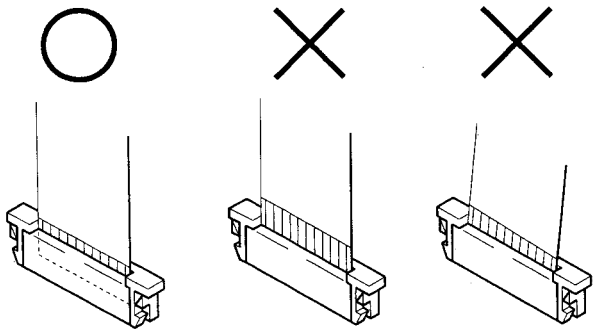
MICROFILM

SONY®

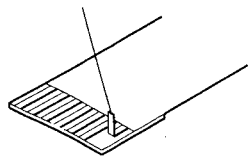
SERVICE NOTE

• NOTE FOR REPAIR

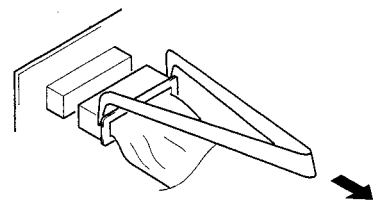
Make sure that the flat cable and flexible board are not cracked of bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



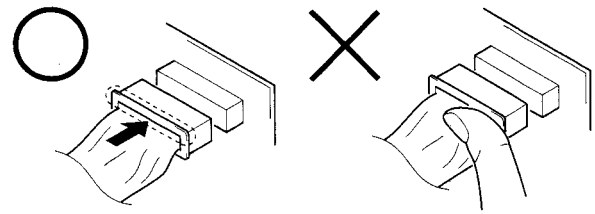
Cut and remove the part of gilt which comes off at the point. (Take care that there are some pieces of gilt left inside)



When remove a connector, don't pull at wire of connector.
Be in danger of the snapping of a wire.



When installing a connector, don't press down at wire of connector.
Be in danger of the snapping of a wire.



SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270 °C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

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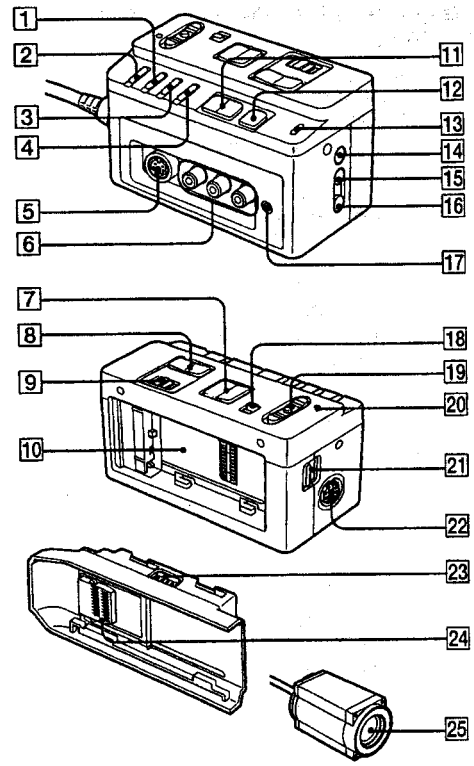
SECTION 1
GENERAL

This section is extracted from CVX-V18NS/V18NSP instruction manual.

Features

- NightShot function.
- Precision CCD with 470,000 pixel for CVX-V18NS and 570,000 pixel for CVX-V18NSP.
- Macro function 10 mm close-up shooting ability.
- The supplied adaptor allows connection to the DSR-V10/V10P VCR.
- Video/audio and S-Video outputs allow connections to other video equipment.

Identifying the parts



Main unit

1 SHUTTER button
2 EXPOSURE button
3 TITLE button
4 MENU button
5 S VIDEO jack
6 VIDEO/AUDIO OUTPUT jacks
7 ZOOM button
8 NEAR/FAR button
9 FOCUS switch
10 Battery pack/adaptor mounting surface
11 +/– button
12 EXEC button
13 BATT lamp
14 DISPLAY button
15 DATE button
16 TIME button
17 MIC (PLUG IN POWER) jack
Connect an external microphone (not supplied).
18 NIGHTSHOT switch
19 POWER switch
20 POWER lamp
21 BATTERY RELEASE button
22 Connector (for the camera cable)

Adaptor

23 RELEASE button
24 Connector

Camera

25 Lens

Connections

The DSR-V10/V10P VCR can be connected to this unit. The VCR supplies power to this unit.

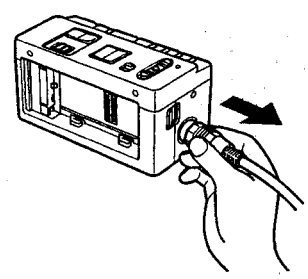
When using this unit as a single video camera, connect this unit to a TV or VCR using the A/V connecting cable (not supplied). Refer to the operating instructions supplied with the equipment to be connected.

Connecting the camera to the main unit

Insert the camera plug to the connector on the main unit while aligning the arrow mark of the camera plug and main unit connector.

To remove the camera

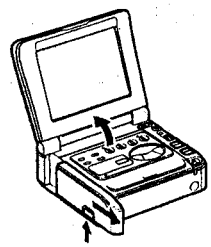
Remove the camera by pulling the plug out while holding the plug lock. If you attempt to remove the camera without holding the plug lock, the plug and connector will be damaged.



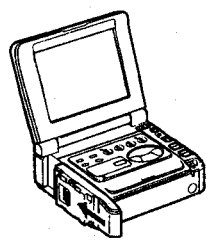
Connecting this unit to the Video Cassette Recorder (VCR)

The recommended VCR to be connected to this unit is the Sony DSR-V10/V10P. The DSR-V10 is used in the sample illustration.

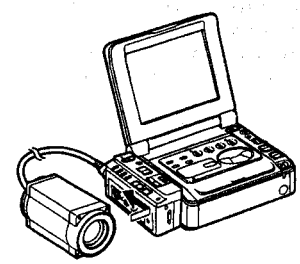
(1) Open the LCD screen on the VCR and remove the jack cover.



(2) Attach the supplied adaptor to the VCR.

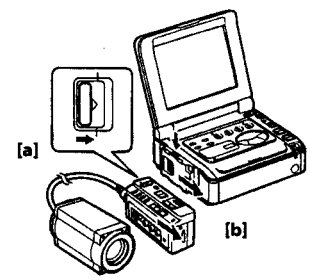


(3) Attach this unit to the supplied adaptor.



When removing this unit from the adaptor [a]
Slide the RELEASE button on this unit in the direction of the arrow.

When removing the adaptor from the VCR [b]
Slide the RELEASE button on the adaptor in the direction of the arrow.

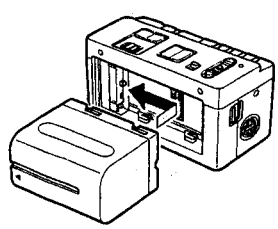


Notes

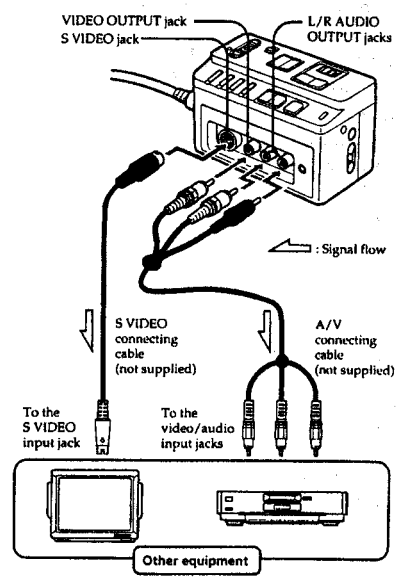
- When this unit is not connected to the VCR, be sure to attach the jack cover on the VCR for jack protection. The procedure for attaching the jack cover is same as the procedure for attaching the adaptor.
- The camera cable and the extension cable (not supplied) can only be connected to this model. Never connect to any other equipment.

Using this unit as a single video camera

(1) Attach a charged battery pack (not supplied) to this unit.
The AC-V700 or AC-VQ800 power adaptor can be used to supply power from an AC power source when using the DK-415 connecting cable.



(2) Connect other video equipment using the A/V connecting cable (not supplied).
Use an appropriate audio/video connecting cable to connect this unit to other video equipment. If the other video equipment has an S VIDEO jack, connect the S VIDEO jack instead of the yellow (video) jack. A clearer picture can then be obtained.


VIDEO OUTPUT jack
S VIDEO jack
L/R AUDIO OUTPUT jacks
: Signal flow
S VIDEO connecting cable (not supplied)
A/V connecting cable (not supplied)
To the S VIDEO input jack
To the video/audio input jacks
Other equipment

Resetting the date and time

You can reset the date and time in the menu system.

(1) Press MENU to display the menu.

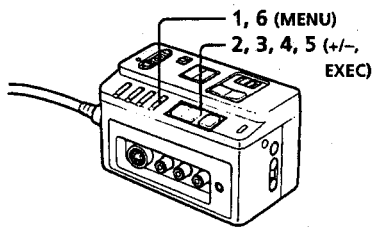
(2) Press +/– to select ETC, then press EXEC.

(3) Press +/– to select CLOCK SET, then press EXEC.

(4) Press +/– to adjust the desired year, then press EXEC.

(5) Set the month, day, hour and minute by pressing +/– and EXEC.

(6) Press MENU to erase the menu display.



To correct the date and time setting

Repeat the above procedure.

To check the preset date and time

Press DATE to display the date indicator.

Press TIME to display the time indicator.

When you press the same button again, the indicator goes off.

The year changes as follows:

1999 ⟷ 2000 ⟵ · · · · ⟶ 2029

Notes on the time indicator

CVX-V18NS:

The internal clock of this unit operates on a 12-hour cycle.

- 12:00 AM Stands for midnight.
- 12:00 PM Stands for noon.

CVX-V18NSP:

The internal clock of this unit operates on a 24-hour cycle.

Recording

Pictures shot with this unit can be recorded onto a VCR, etc. Refer to the operating instructions supplied with the video equipment to be connected.

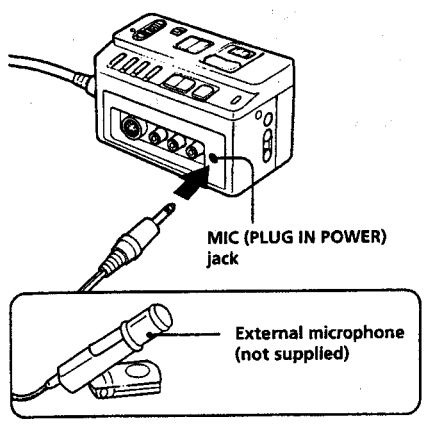
Recording on a VCR

The recommended VCR to be connected to this unit is the Sony DSR-V10/V10P. The DSR-V10 is used in the sample illustration.

(1) When recording sound, connect an external microphone (not supplied).

Connect an external microphone to the MIC (PLUG IN POWER) jack.

The MIC (PLUG IN POWER) jack can also be connected to the plug-in-power microphone.



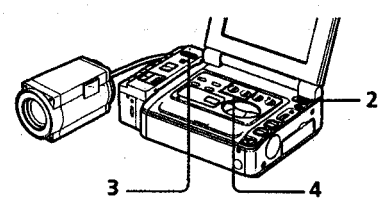
(2) Turn on the power of the DSR-V10/V10P.

The POWER lamp on the DSR-V10/V10P lights up.

(3) Turn on the power of this unit.

The POWER lamp on this unit lights up.

(4) Insert a cassette into the DSR-V10/V10P and start recording.



Notes on recording

- Contents of the recording cannot be compensated if recording is not made due to a malfunction of this unit, video tape, etc.
- When using this unit connected to a VCR, note that all the displayed characters and icons will be recorded.

Recording time with the battery pack

Battery pack	Possible usage time (min.)	
	Using with the DSR-V10/V10P	Stand alone use
NP-F750	80 (70)	610 (550)
NP-F950	130 (115)	930 (830)

When using a fully charged battery pack (Full charge), the numbers indicate the remaining recording time . When using a normally charged battery pack (Normal charge), the numbers in parentheses indicate the remaining recording time.

Notes on the battery pack

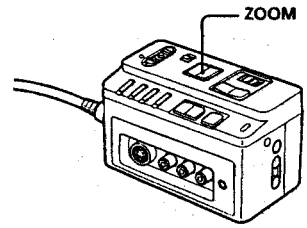
- When the battery runs low, the BATT lamp lights up, and when the battery is empty, the BATT lamp goes off.
- When the power of the battery pack attached to the video equipment which is connected to this unit runs low, the POWER lamp on this unit goes off and then the power turns off automatically.
- When the NP-F330, NP-F530 or NP-F550 is used, the recording time may be shorter, or recording may not be performed. We recommend using a battery pack with a longer battery life.
- Depending on the type of battery, the BATT lamp may not light even when the battery runs low.

Using the zoom feature

This camera is equipped with zoom. When using the zoom, adjust manually.

"T" side: for telephoto (subject appears closer)

"W" side: for wide-angle (subject appears farther away)

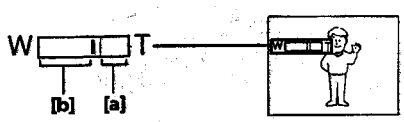


When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, move ZOOM to the "W" side until the focus is sharp. You can shoot a subject that is at least about 2 5/8 feet (about 80 cm) away from the lens surface in the telephoto position, or about 1/2 inch (about 1 cm) away in the wide-angle position.

Notes on digital zoom

- More than 18x zoom is performed digitally, and the picture quality deteriorates as you go toward the "T" side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system.
- The right side **[a]** of the power zoom indicator shows the digital zooming zone, and the left side **[b]** shows the optical zooming zone. If you set the D ZOOM function to OFF, the **[a]** zone disappears.



Using as the NightShot camera

The NightShot function enables you to shoot a subject in a dark place. Use this function to record a clear picture without light.

This function may record picture nearly in monochrome.

Using the NightShot Light

When you set IR LIGHT to ON in the menu system, the picture will be more clear.

IR Light rays are infrared and are therefore invisible. The maximum range of IR Light is about 16 feet (about 5 meters) when SLOW SHTR (SHUTTER) is set to MANUAL. When you set SLOW SHTR to AUTO in the menu system, the range of IR light is extended.

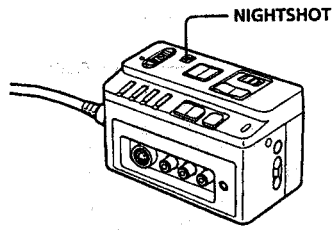
Notes on the NightShot

- When you keep setting NIGHTSHOT to ON in normal recording, picture may be recorded in incorrect/unnatural color.
- If focusing is difficult with the autofocus mode when using the NightShot function, focus manually.

Using various features

Shooting in the dark (NightShot)

Slide NIGHTSHOT to ON.
appears on the monitor screen.



To cancel the NightShot function

Slide NIGHTSHOT to OFF.

Notes on the Nightshot

- You cannot adjust the exposure while using the Nightshot function.
- You cannot use the shutter with a shutter speed higher than the normal speed.
  (Normal shutter speed: 1/60 for NTSC or 1/50 for PAL).

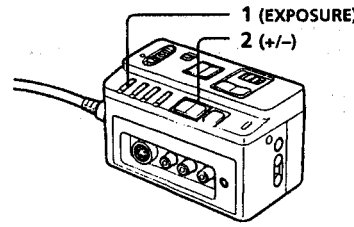
Adjusting the exposure

Adjust the exposure manually under the following cases.

- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark
- Bright subject and dark background
- To record the darkness faithfully

(1) Press EXPOSURE.

(2) Press +/– to adjust the brightness.



To return to automatic exposure mode

Press EXPOSURE again.

Shooting with the sun behind the subject

If the light source is behind your subject, or in the following situations, the subject will be recorded too dark.

- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Making your own title

You can make your own title of 20 characters.

(1) Press TITLE to display the title menu.

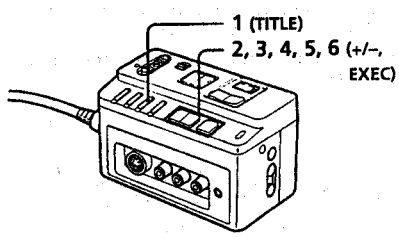
(2) Press +/– to select , then press EXEC.

(3) Press +/– to select the column of the desired character, then press EXEC.

(4) Press +/– to select the desired character, then press EXEC.

(5) Repeat step 3 and 4 until you finish the title.

(6) For finishing the titling work, press +/– to select [SET], then press EXEC.



Note

You can not enter over 20 characters title.

To delete a title

In step 3, press +/– to select [←] then press EXEC. The last character is erased. Repeat this step until all characters are deleted.

Superimposing a title

You can select the color and position of the title to superimpose on the screen or even make it blink.

(1) Press TITLE to display the title menu.

(2) Press +/– to select , then press EXEC.

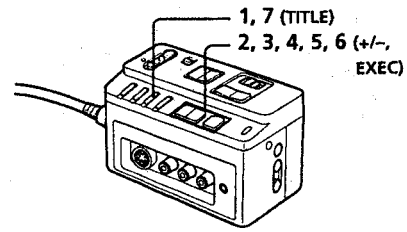
(3) Press +/– to select the color or position, then press EXEC.

(4) Press +/– to select the desired item, then press EXEC.

(5) Repeat step 3 and 4 until the title is arranged as desired.

(6) Press EXEC again to complete the setting.

(7) When you want to stop recording the title, press TITLE.



Note on superimposing a title
If you have not created a custom title, "- - - - ..." appears on the monitor screen.

Title color changes as follows :
WHITE ↔ YELLOW ↔ VIOLET ↔ RED ↔ CYAN ↔ GREEN ↔ BLUE

Title positions
You can select from among 11 positions vertically or 24 positions horizontally.

Title blinking selection changes as follows:
ON↔OFF

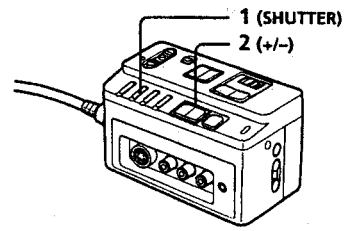
Notes on the title
- Depending on position of the title, both of date and time or either of them is not displayed.
- When a long title is positioned on the right side of the screen, the whole title may not be completely displayed.

Selecting the shutter speed

The shutter speed can be selected using the SHUTTER button.

(1) Press SHUTTER.

(2) Press +/– to select the shutter speed.



To adjust the shutter speed automatically

Press SHUTTER again.

CVX-V18NS

SETTING	SHUTTER SPEED
4	1/4
8	1/8
15	1/15
30	1/30
60	1/60
90	1/90
100	1/100
125	1/125
180	1/180
250	1/250
350	1/350
500	1/500
725	1/725
1000	1/1000
1500	1/1500
2000	1/2000
3000	1/3000
4000	1/4000
6000	1/6000
10000	1/10000

CVX-V18NSP

SETTING	SHUTTER SPEED
3	1/3
6	1/6
12	1/12
25	1/25
50	1/50
75	1/75
100	1/100
120	1/120
150	1/150
215	1/215
300	1/300
425	1/425
600	1/600
1000	1/1000
1250	1/1250
1750	1/1750
2500	1/2500
3500	1/3500
6000	1/6000
10000	1/10000

Changing the mode settings

You can change the mode settings in the menu system to further enjoy the features and functions of the camera.

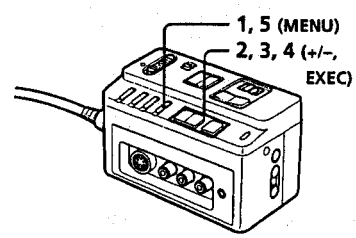
(1) Press MENU to display the menu.

(2) Press +/– to select the desired icon in the left side of the menu, then press EXEC.

(3) Press +/– to select the desired item, then press EXEC.

(4) Press +/– to select the desired mode, and press EXEC. If you want to change the other modes, repeat steps 3 and 4. If you want to change the other items, select ⮐ RETURN and press EXEC, then repeat steps from 2 to 4.

(5) Press MENU or select ⮐ icon to erase the menu display.



Selecting the mode setting of each item

CAMERA1 SET menu

D ZOOM
- Switches the digital zoom ON or OFF.
- Switch ON when using the digital zoom.

The digital zoom will enlarge any picture which cannot be sufficiently enlarged with the normal zoom. However, note that the picture quality deteriorates when using the digital zoom compared with the normal zoom.

AF SENS.
- Switches the auto focus sensor setting to HIGH or LOW.
- Switch to HIGH to record fast-moving subjects clearly.

SLOW SHTR
- Switches the SLOW SHUTTER setting to MANUAL or AUTO.
- Switch to AUTO to record subjects in dark environments clearly.

IR LIGHT
- Switches the IR LIGHT ON or OFF.
- Switch ON to record subjects in dark environment clearly when using the NIGHTSHOT function without lighting.

CAMERA2 SET menu

STEADYSHOT
- Switches the STEADYSHOT ON or OFF.
- Switch ON to reduce camera shake even when using the zoom function.

MIRROR
- Switches the MIRROR mode ON or OFF.
- Switch ON to reverse left and right.

16:9 WIDE
- Toggles the ratio of the monitor screen between OFF, CINEMA and 16:9 FULL.
- CINEMA

  Pictures recorded on CINEMA will appear normal on a wide-screen TV however, when played on a normal-screen TV, black bands will appear across the top and bottom of the screen.
- 16:9 FULL

  Pictures recorded on 16:9 FULL will appear normal on a wide-screen TV however, when played on a normal-screen TV, the picture will appear horizontally compressed.

ETC menu

CLOCK SET
- Sets the built-in clock.

Turning off the screen display except date, time and menu

Press DISPLAY.

To resume the screen display

Press DISPLAY again.

Displaying the date

Press DATE.

To turn off the date

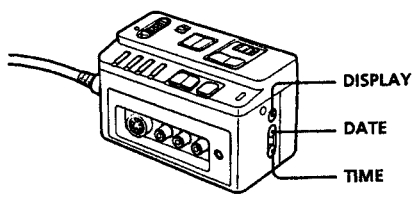
Press DATE again.

Displaying the time

Press TIME.

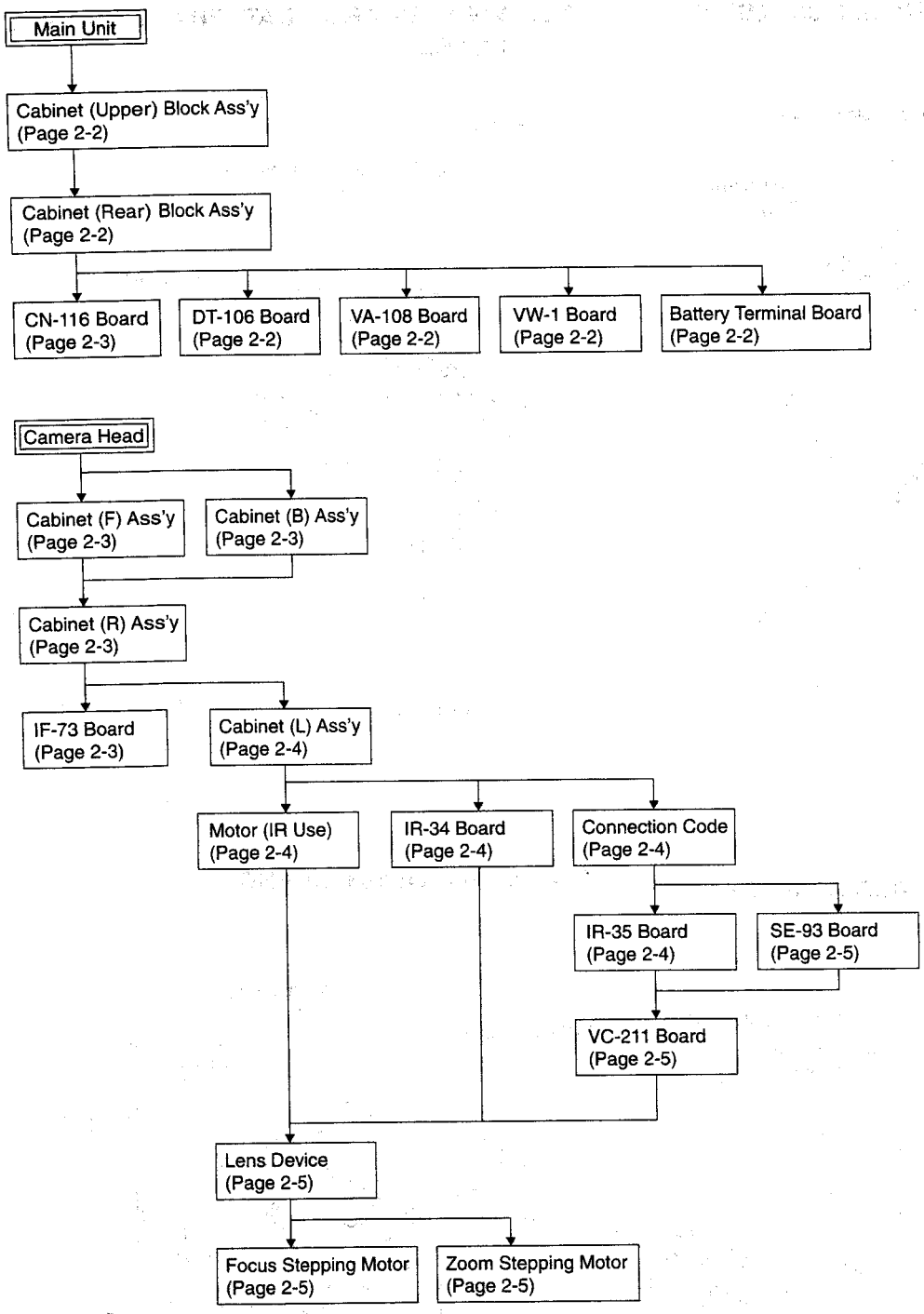
To turn off the time

Press TIME again.



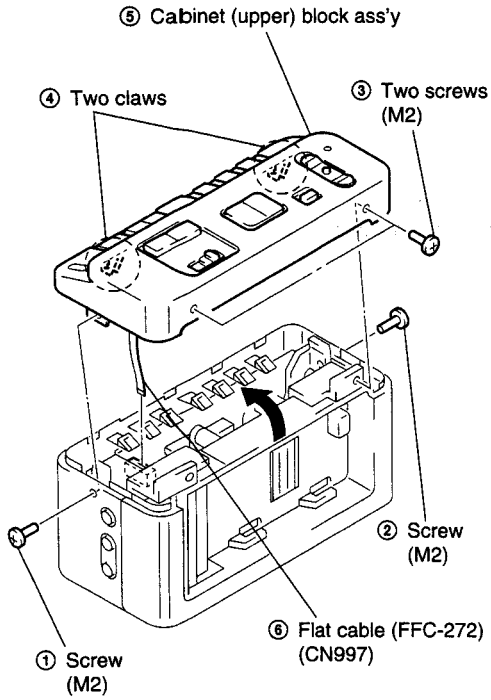
SECTION 2
DISASSEMBLY

- This set can be disassembled in the order shown below.

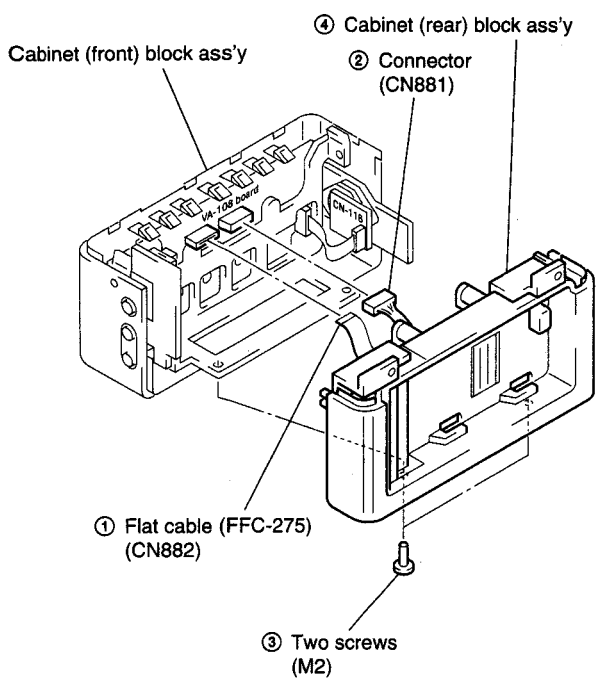

Main Unit
Cabinet (Upper) Block Ass'y (Page 2-2)
Cabinet (Rear) Block Ass'y (Page 2-2)
CN-116 Board (Page 2-3)
DT-106 Board (Page 2-2)
VA-108 Board (Page 2-2)
VW-1 Board (Page 2-2)
Battery Terminal Board (Page 2-2)
Camera Head
Cabinet (F) Ass'y (Page 2-3)
Cabinet (B) Ass'y (Page 2-3)
Cabinet (R) Ass'y (Page 2-3)
IF-73 Board (Page 2-3)
Cabinet (L) Ass'y (Page 2-4)
Motor (IR Use) (Page 2-4)
IR-34 Board (Page 2-4)
Connection Code (Page 2-4)
IR-35 Board (Page 2-4)
SE-93 Board (Page 2-5)
VC-211 Board (Page 2-5)
Lens Device (Page 2-5)
Focus Stepping Motor (Page 2-5)
Zoom Stepping Motor (Page 2-5)

Note: Follow the disassembly procedure in the numerical order given.

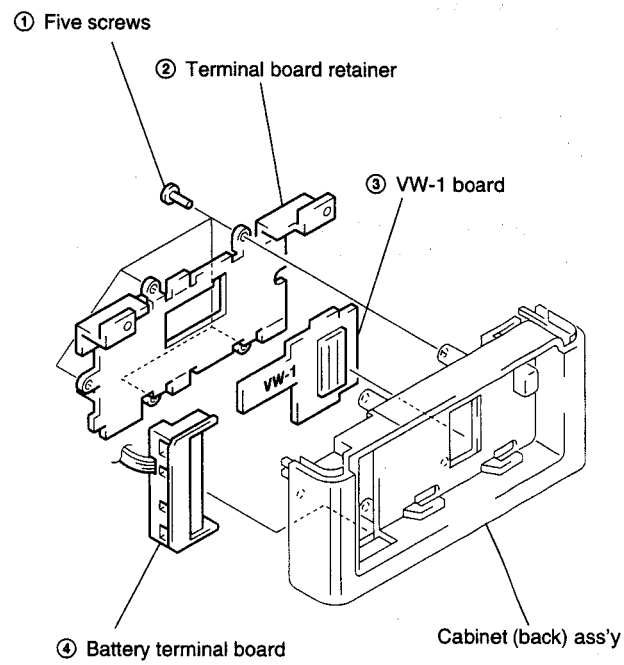
2-1. CABINET (UPPER) BLOCK ASS'Y



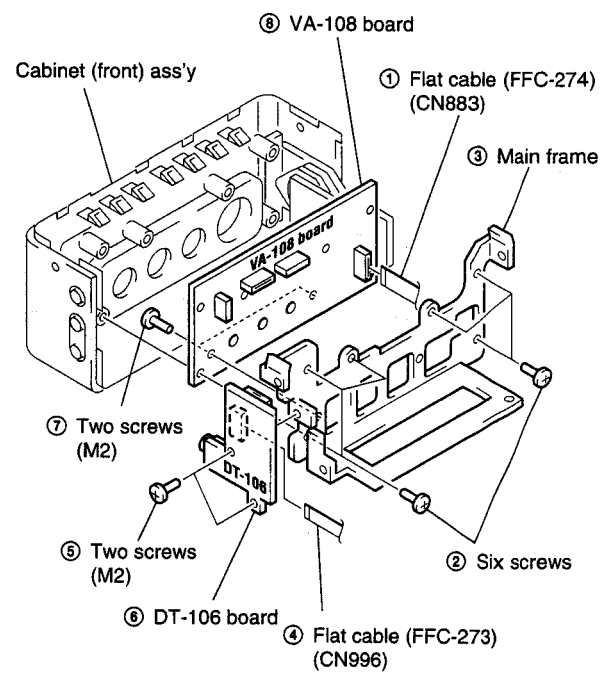
2-2. CABINET (REAR) BLOCK ASS'Y



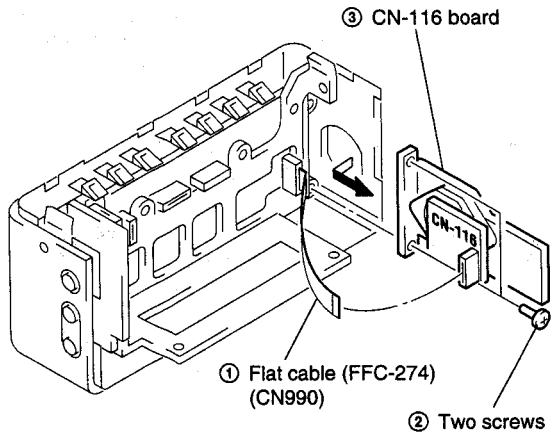
2-3. VW-1 BOARD, BATTERY TERMINAL BOARD



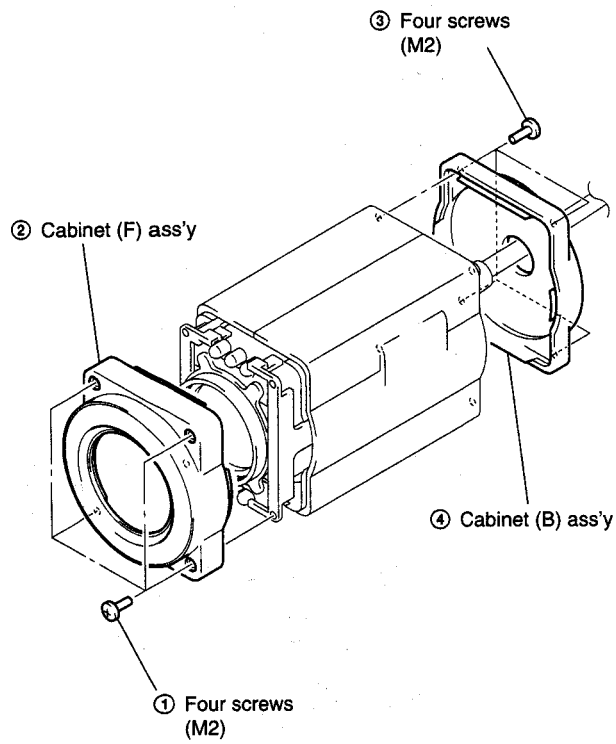
2-4. DT-106/VA-108 BOARD



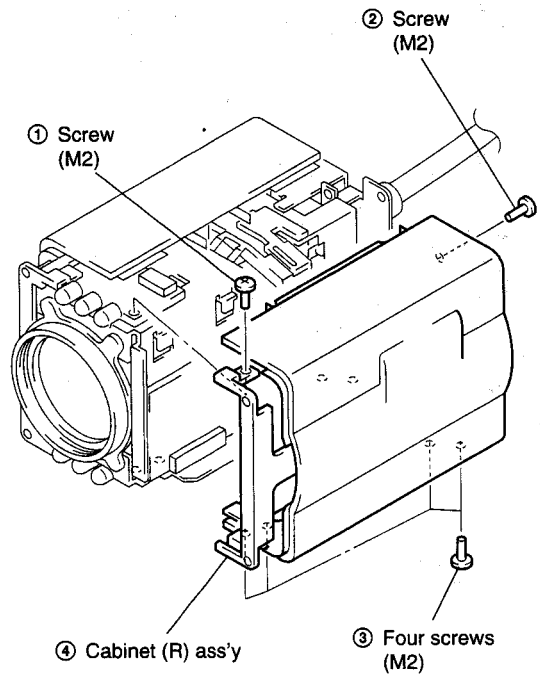
2-5. CN-116 BOARD



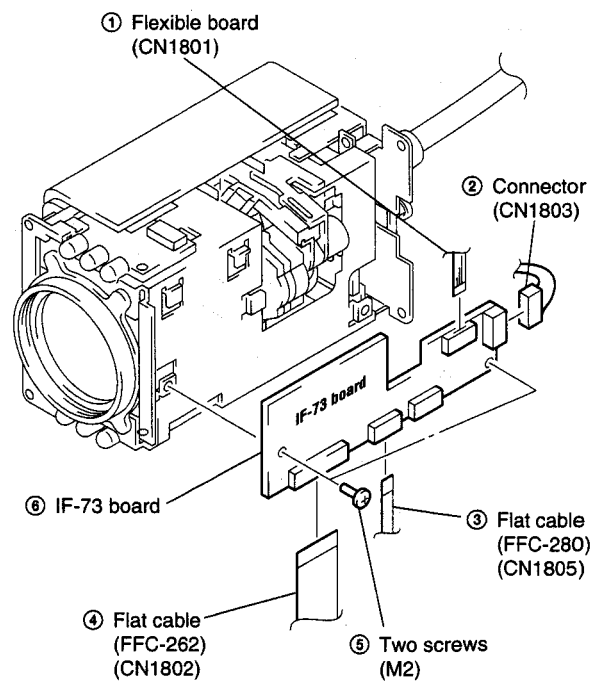
2-6. CABINT (F/B) ASS'Y



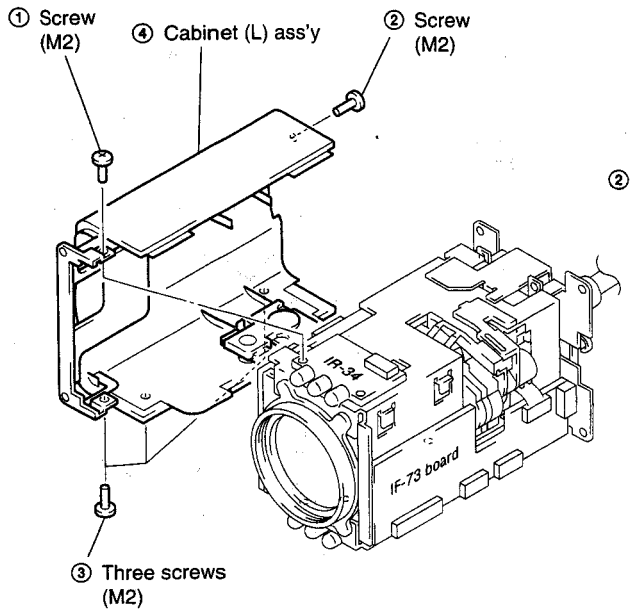
2-7. CABINET (R) ASS'Y



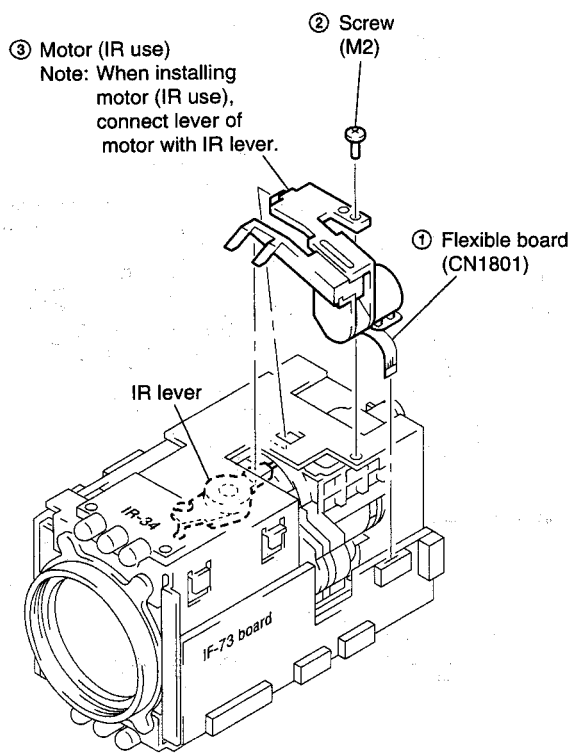
2-8. IF-73 BOARD



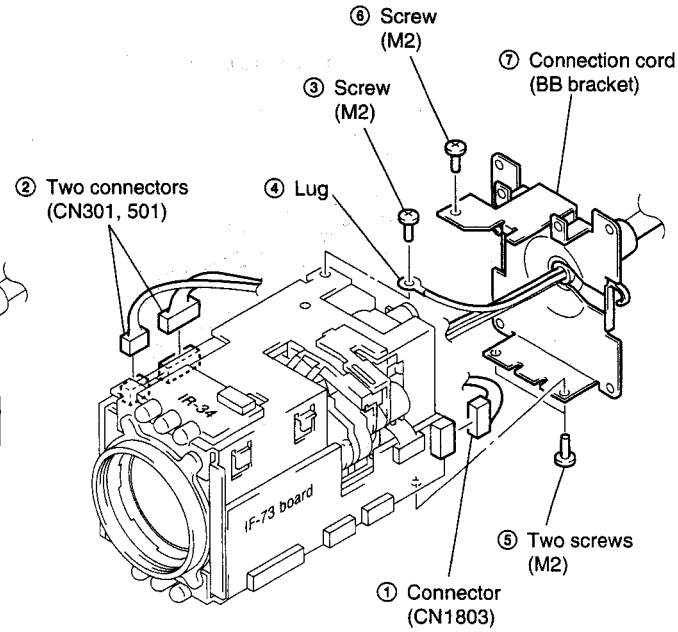
2-9. CABINET (L) ASS'Y



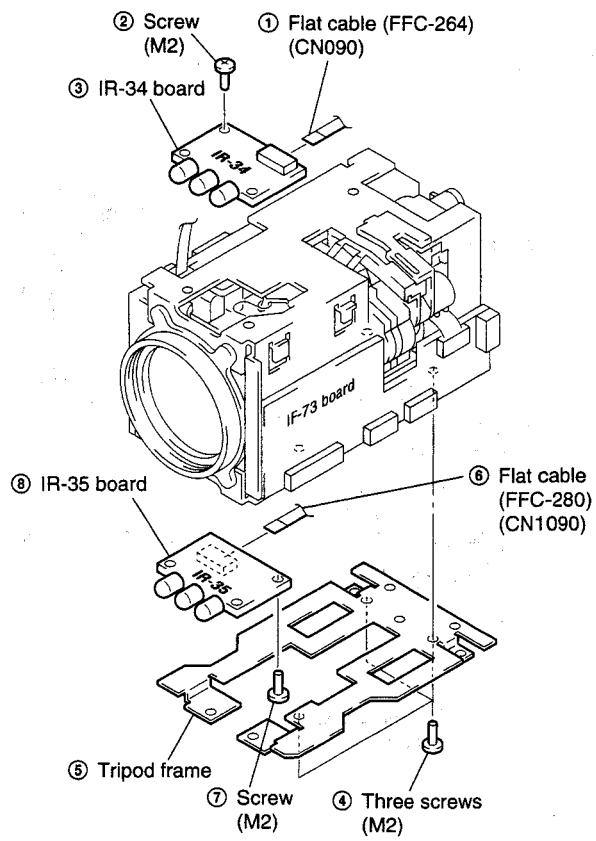
2-10. MOTOR (IR USE)


② Screw (M2)
③ Motor (IR use)
Note: When installing motor (IR use), connect lever of motor with IR lever.
① Flexible board (CN1801)
IR lever
IR-34
IF-73 board

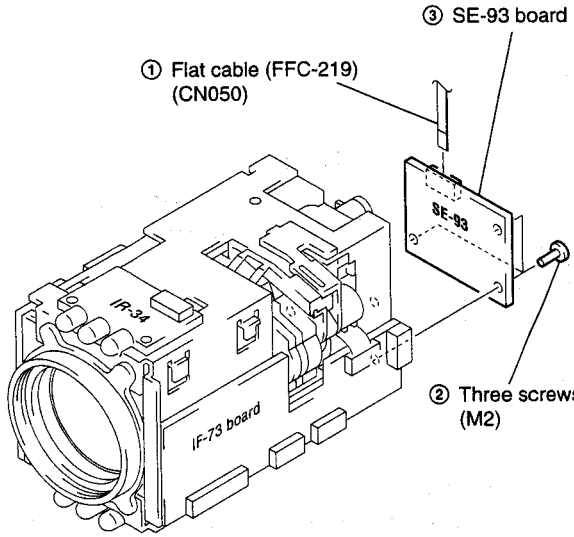
2-11. CONNECTION CORD



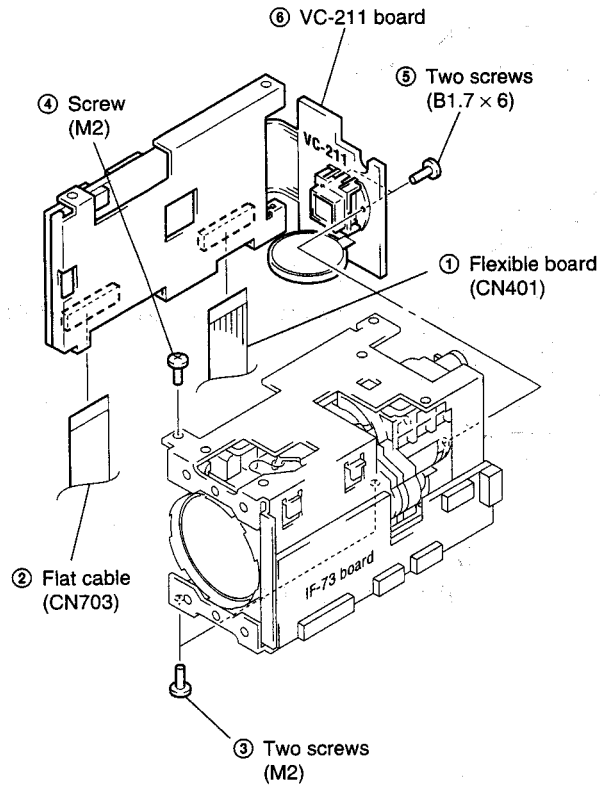
2-12. IR-34/35 BOARD



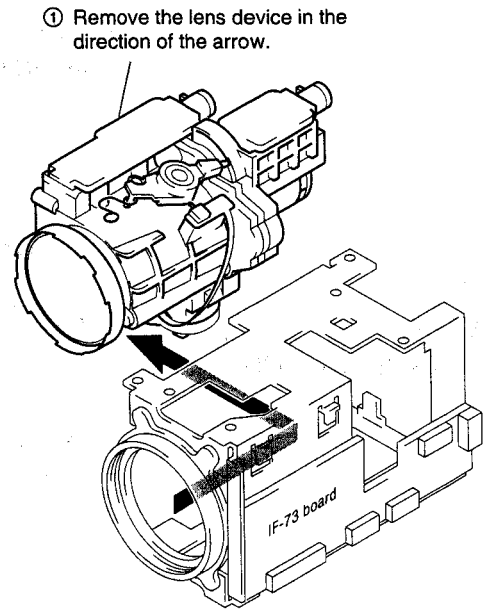
2-13. SE-93 BOARD



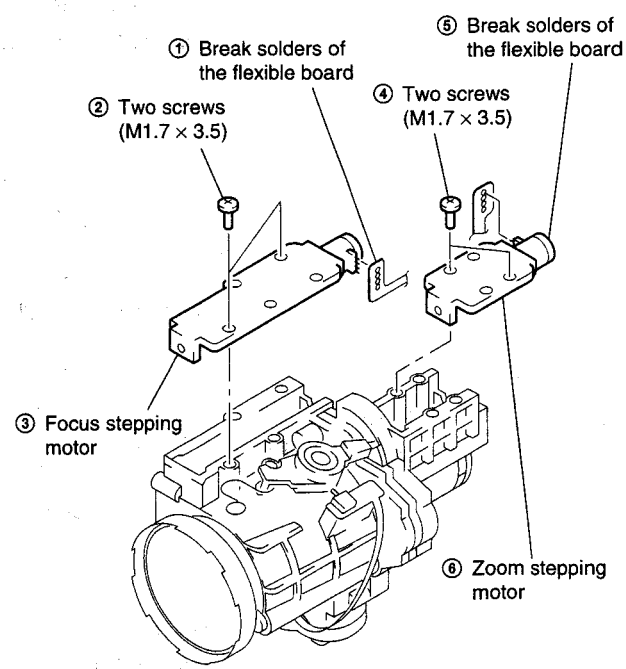
2-14. VC-211 BOARD



2-15. LENS DEVICE

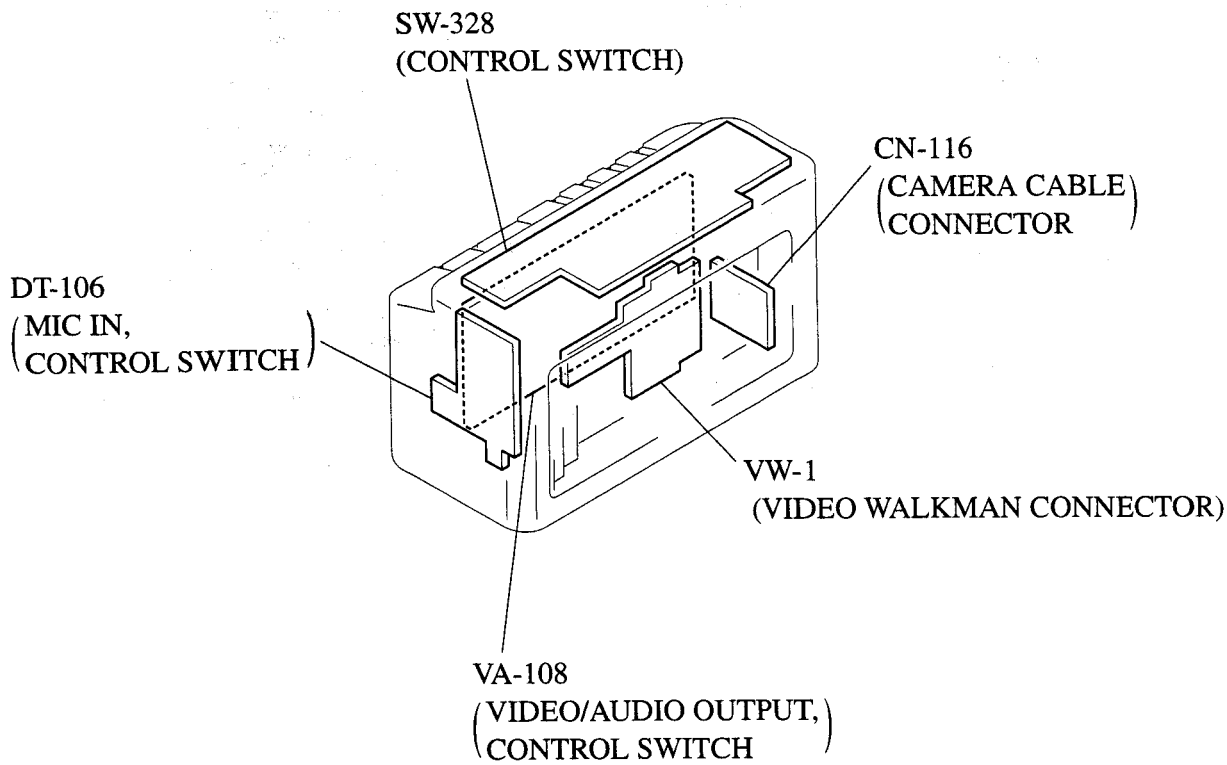


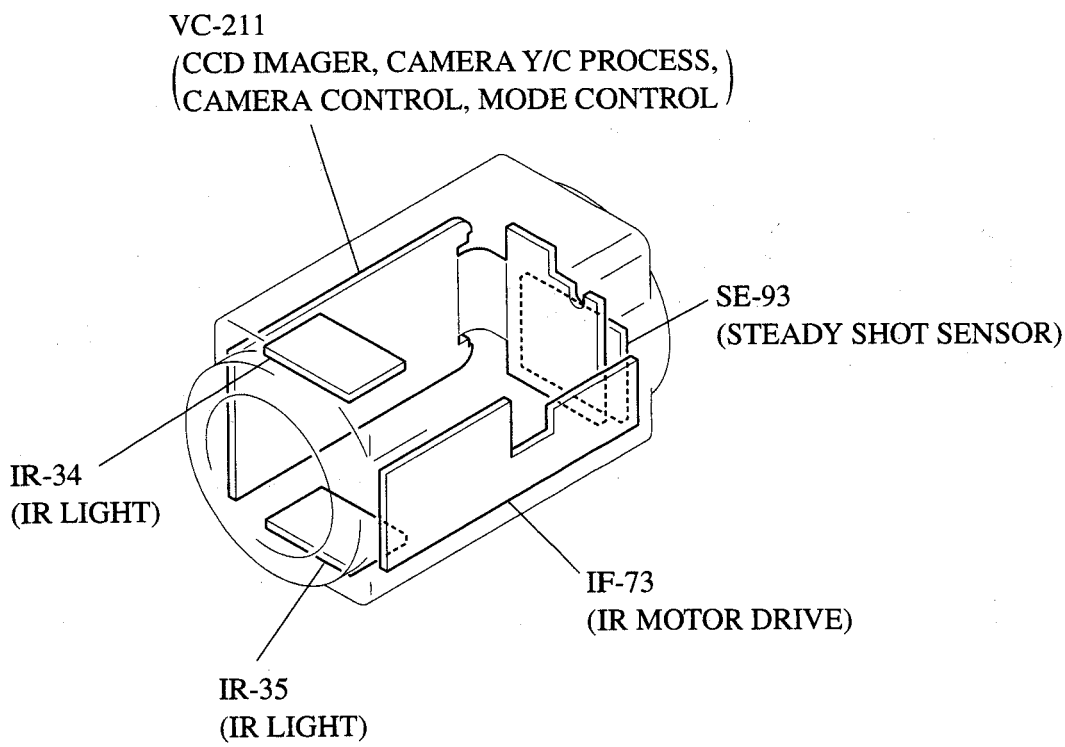
2-16. FOCUS/ZOOM STEPPING MOTOR



Note: Flexible board of lens device is not supplied.
Please be careful not break the flexible board
when you change the motor unit.

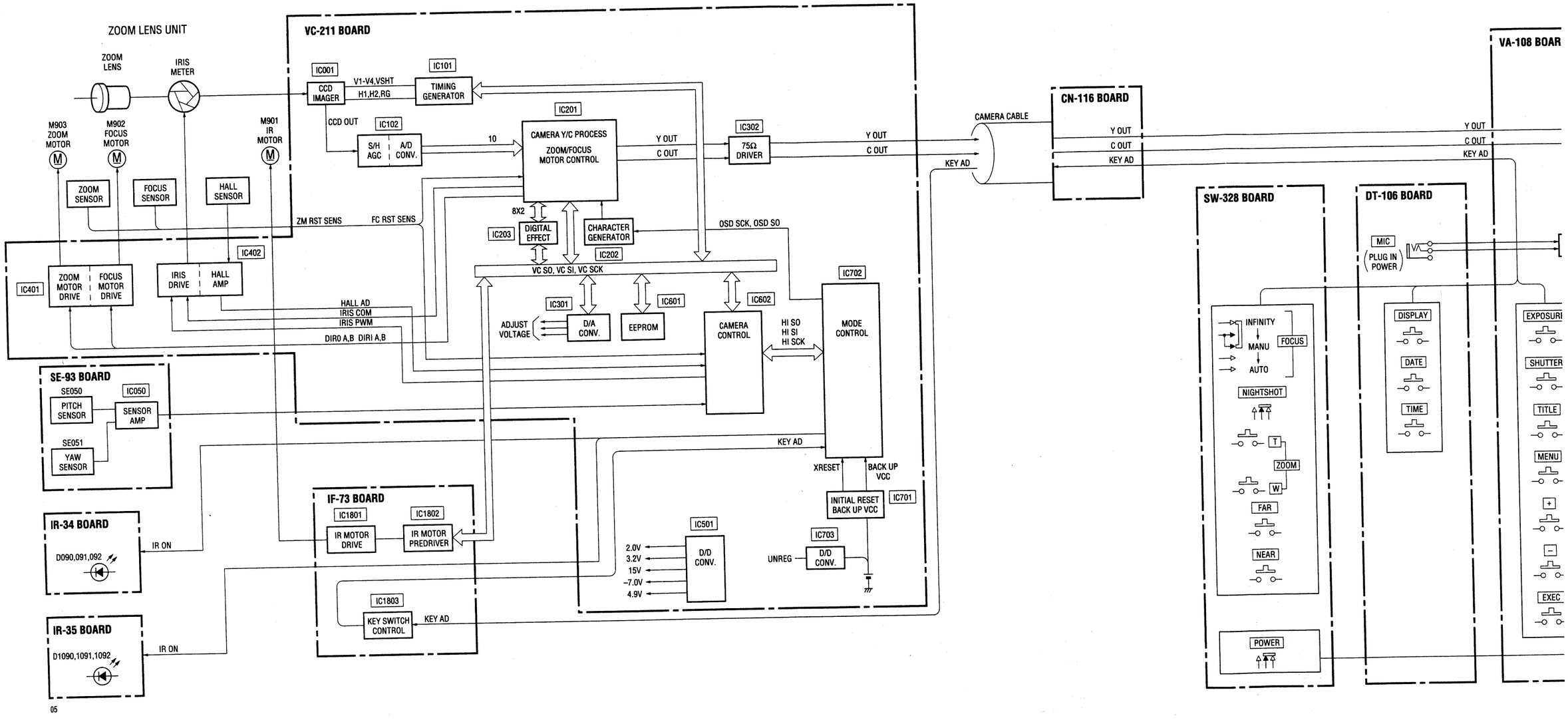
2-17. CIRCUIT BOARDS LOCATION



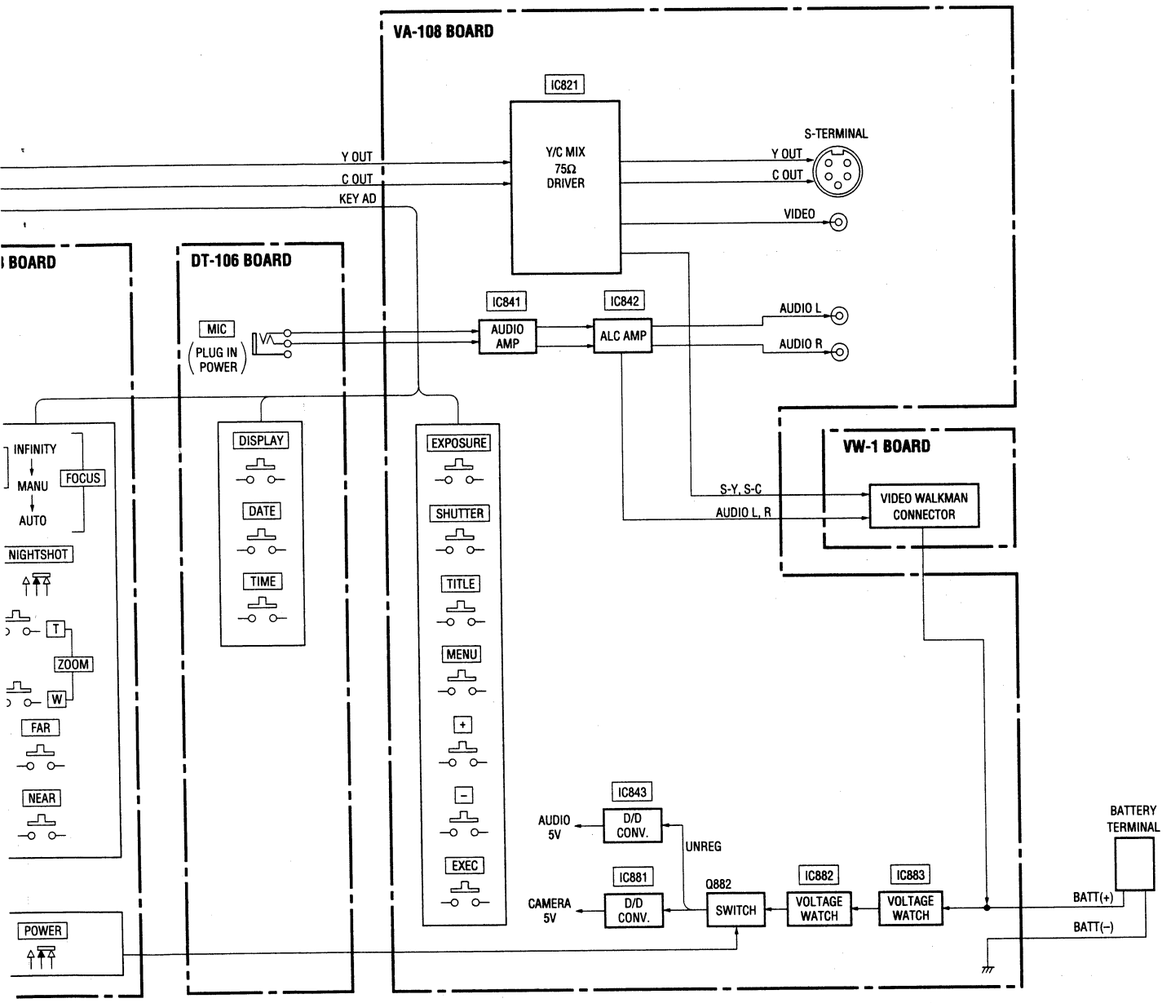


SECTION 3
BLOCK DIAGRAMS

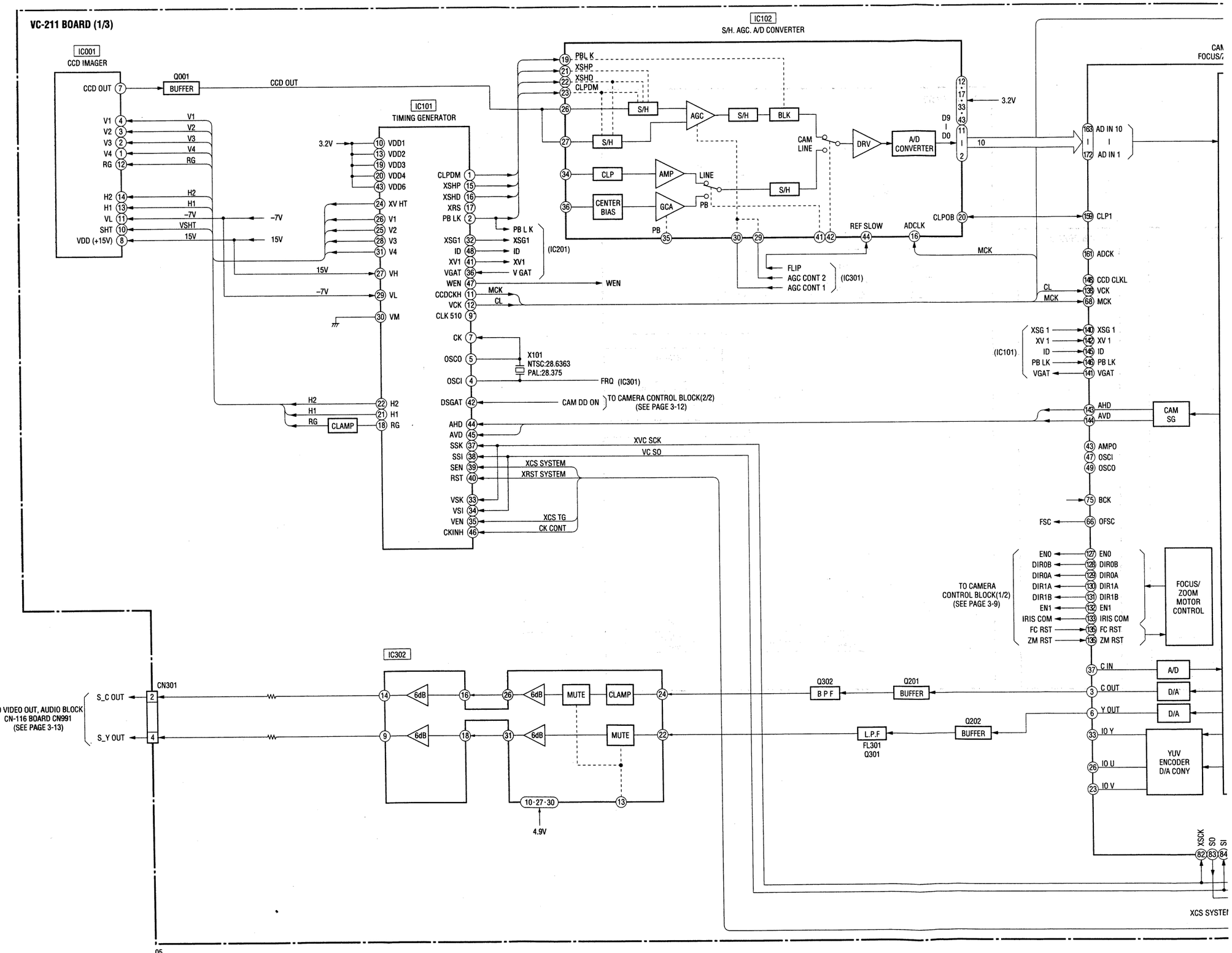
3-1. OVERALL BLOCK DIAGRAM

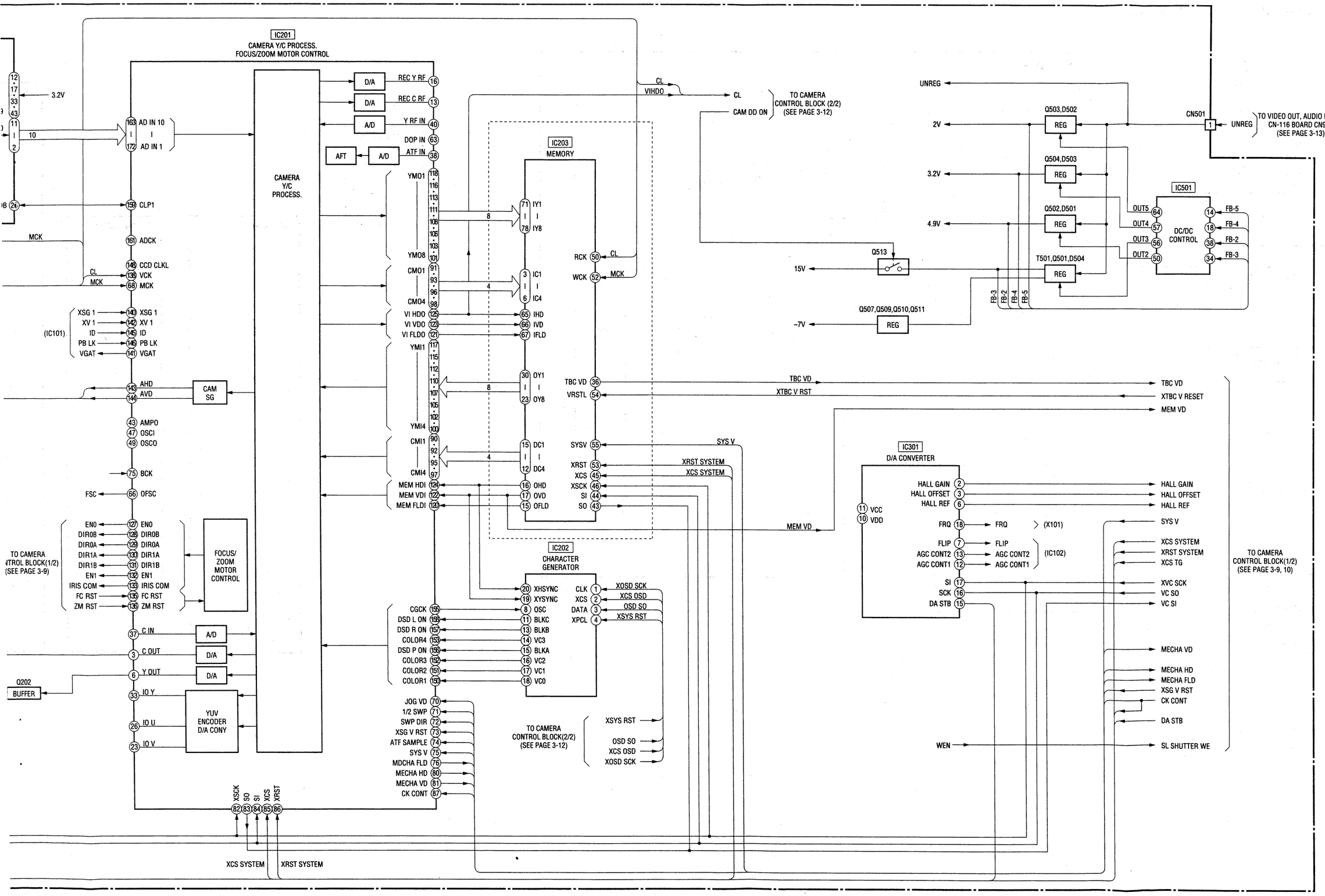


05

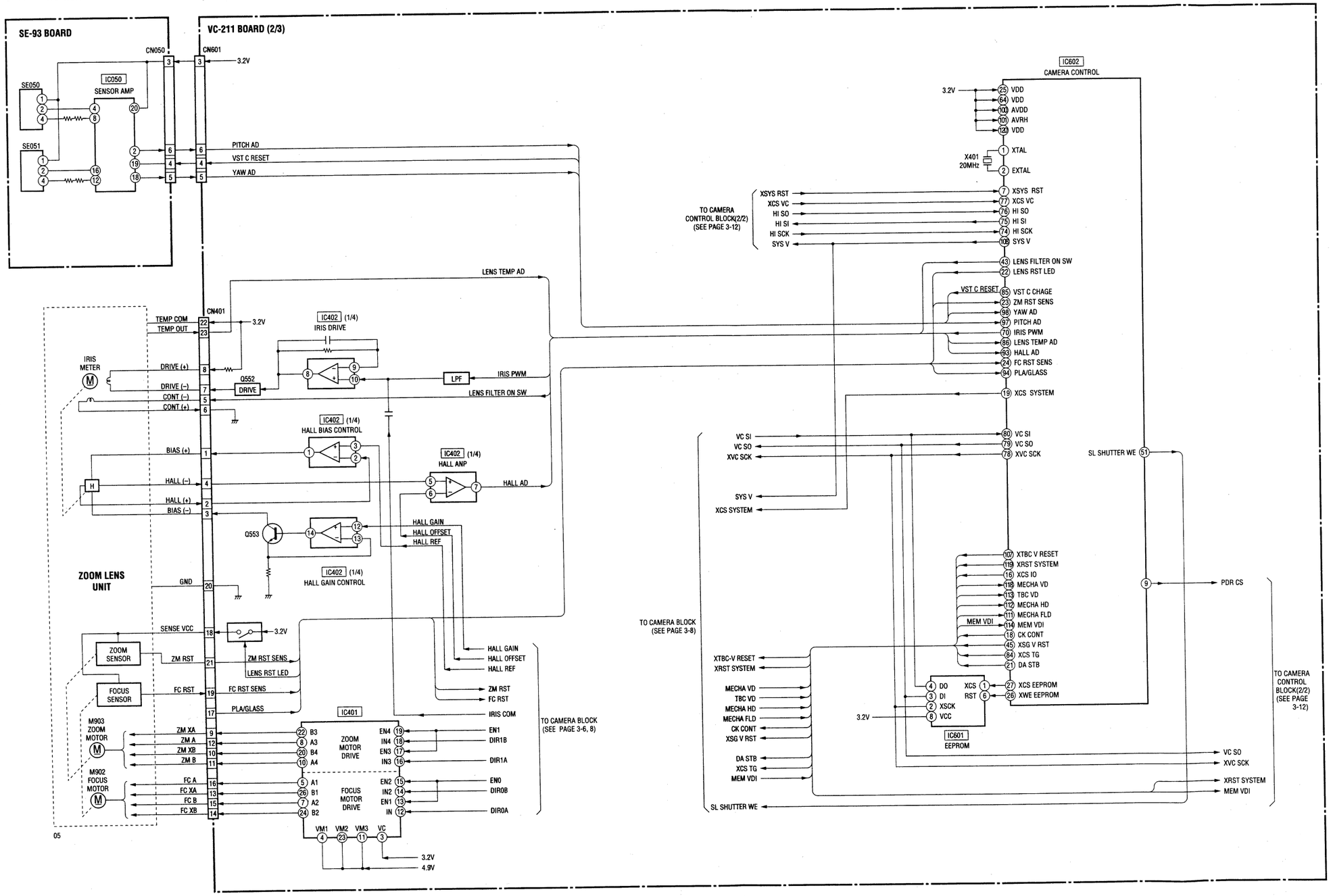

VA-108 BOARD
IC821
Y/C MIX
75Ω
DRIVER
S-TERMINAL
Y OUT
C OUT
VIDEO
Y OUT
C OUT
KEY AD
DT-106 BOARD
IC841
IC842
MIC
PLUG IN
POWER
AUDIO
AMP
ALC AMP
AUDIO L
AUDIO R
VW-1 BOARD
S-Y, S-C
AUDIO L, R
VIDEO WALKMAN
CONNECTOR
INFINITY
MANU
AUTO
FOCUS
NIGHTSHOT
T
ZOOM
W
FAR
NEAR
DISPLAY
DATE
TIME
EXPOSURE
SHUTTER
TITLE
MENU
+
−
EXEC
IC843
AUDIO
5V
D/D
CONV.
UNREG
IC881
CAMERA
5V
D/D
CONV.
Q882
SWITCH
IC882
VOLTAGE
WATCH
IC883
VOLTAGE
WATCH
BATTERY
TERMINAL
BATT(+)
BATT(−)
POWER

3-2. CAMERA BLOCK DIAGRAM

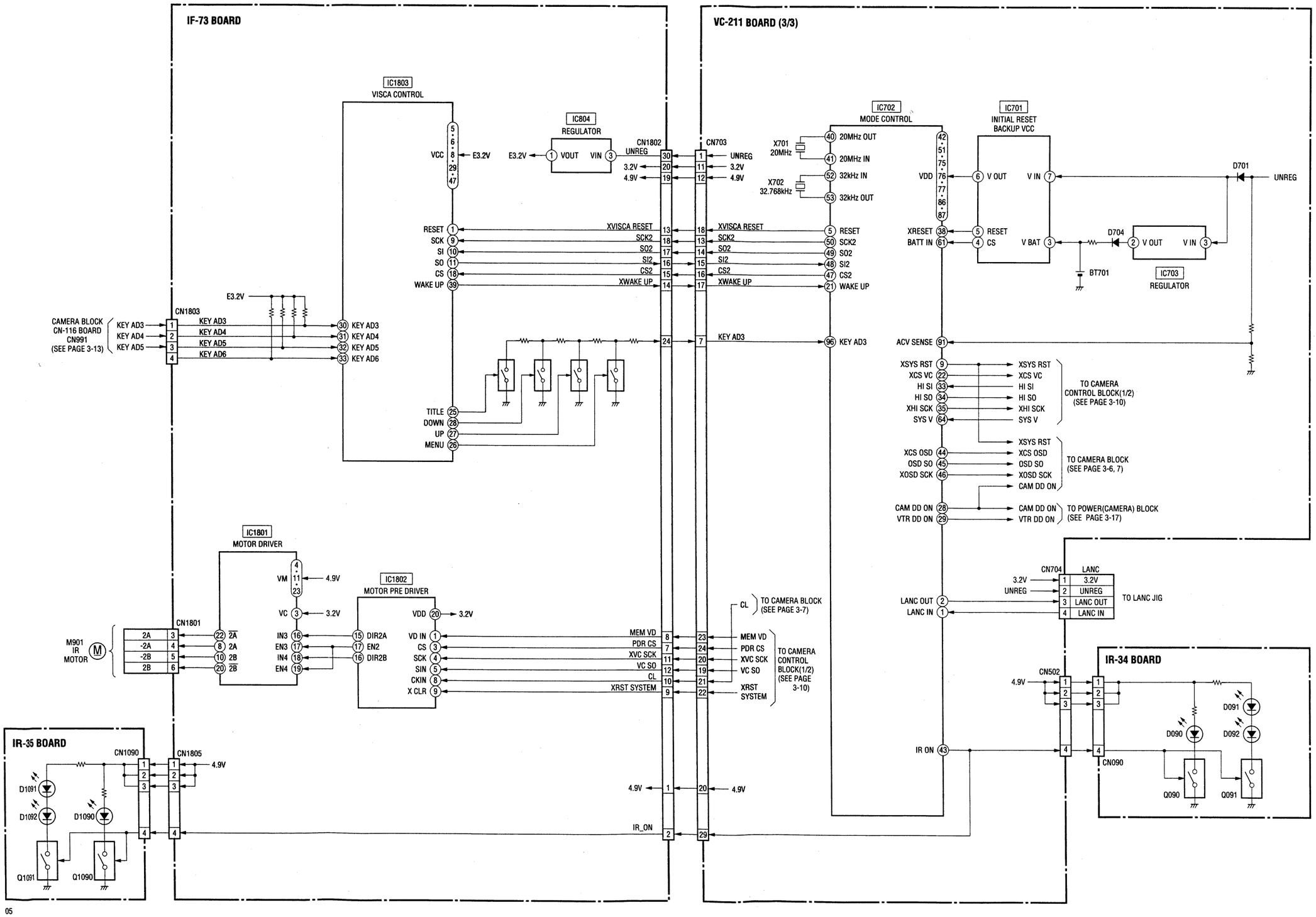



IC201
CAMERA Y/C PROCESS.
FOCUS/ZOOM MOTOR CONTROL
CAMERA Y/C PROCESS.
3.2V
AD IN 10
AD IN 1
CLP1
ADCK
CCD CLKL
VCK
MCK
XSG 1
XV 1
ID
PB LK
VGAT
(IC101)
AHD
AVD
CAM SG
AMPO
OSCI
OSCO
BCK
OFSC
FSC
EN0
DIR0B
DIR0A
DIR1A
DIR1B
EN1
IRIS COM
FC RST
ZM RST
FOCUS/ ZOOM MOTOR CONTROL
TO CAMERA CONTROL BLOCK(1/2) (SEE PAGE 3-9)
C IN
C OUT
Y OUT
A/D
D/A
D/A
Q202
BUFFER
IO Y
IO U
IO V
YUV ENCODER D/A CONY
D/A
REC Y RF
D/A
REC C RF
A/D
Y RF IN
DOP IN
AFT
A/D
ATF IN
YMO1
YMO8
CMO1
CMO4
VI HDO
VI VDO
VI FLDO
YMI1
YMI4
CMI1
CMI4
MEM HDI
MEM VDI
MEM FLDI
IC203
MEMORY
IY1
IY8
IC1
IC4
OY1
OY8
DC1
DC4
OHD
OVD
OFLD
RCK
WCK
CL
MCK
TBC VD
VRSTL
SYSV
XRST
XCS
XSCK
SI
SO
IHD
IVD
IFLD
IC202
CHARACTER GENERATOR
XHSYNC
XYSYNC
OSC
BLKC
BLKB
VC3
BLKA
VC2
VC1
VC0
CLK
XCS
DATA
XPCL
XOSD SCK
XCS OSD
OSD SO
XSYS RST
CGCK
DSD L ON
DSD R ON
COLOR4
DSD P ON
COLOR3
COLOR2
COLOR1
JOG VD
1/2 SWP
SWP DIR
XSG V RST
ATF SAMPLE
SYS V
MDCHA FLD
MECHA HD
MECHA VD
CK CONT
TO CAMERA CONTROL BLOCK(2/2) (SEE PAGE 3-12)
XSYS RST
OSD SO
XCS OSD
XOSD SCK
XSCK
SO
SI
XCS
XRST
XCS SYSTEM
XRST SYSTEM
CL
VIHDO
CL
CAM DD ON
TO CAMERA CONTROL BLOCK (2/2) (SEE PAGE 3-12)
UNREG
2V
3.2V
4.9V
15V
–7V
Q513
Q503,D502
Q504,D503
Q502,D501
T501,Q501,D504
Q507,Q509,Q510,Q511
REG
IC501
DC/DC CONTROL
OUT5
OUT4
OUT3
OUT2
FB-5
FB-4
FB-2
FB-3
CN501
UNREG
TO VIDEO OUT, AUDIO BLOCK CN-116 BOARD CN991 (SEE PAGE 3-13)
TBC VD
XTBC V RST
MEM VD
TBC VD
XTBC V RESET
MEM VD
SYS V
XRST SYSTEM
XCS SYSTEM
IC301
D/A CONVERTER
VCC
VDD
HALL GAIN
HALL OFFSET
HALL REF
FRQ
FLIP
AGC CONT2
AGC CONT1
SI
SCK
DA STB
(X101)
(IC102)
HALL GAIN
HALL OFFSET
HALL REF
SYS V
XCS SYSTEM
XRST SYSTEM
XCS TG
XVC SCK
VC SO
VC SI
MECHA VD
MECHA HD
MECHA FLD
XSG V RST
CK CONT
DA STB
WEN
SL SHUTTER WE
TO CAMERA CONTROL BLOCK(1/2) (SEE PAGE 3-9, 10)

3-3. CAMERA CONTROL (1/2) BLOCK DIAGRAM

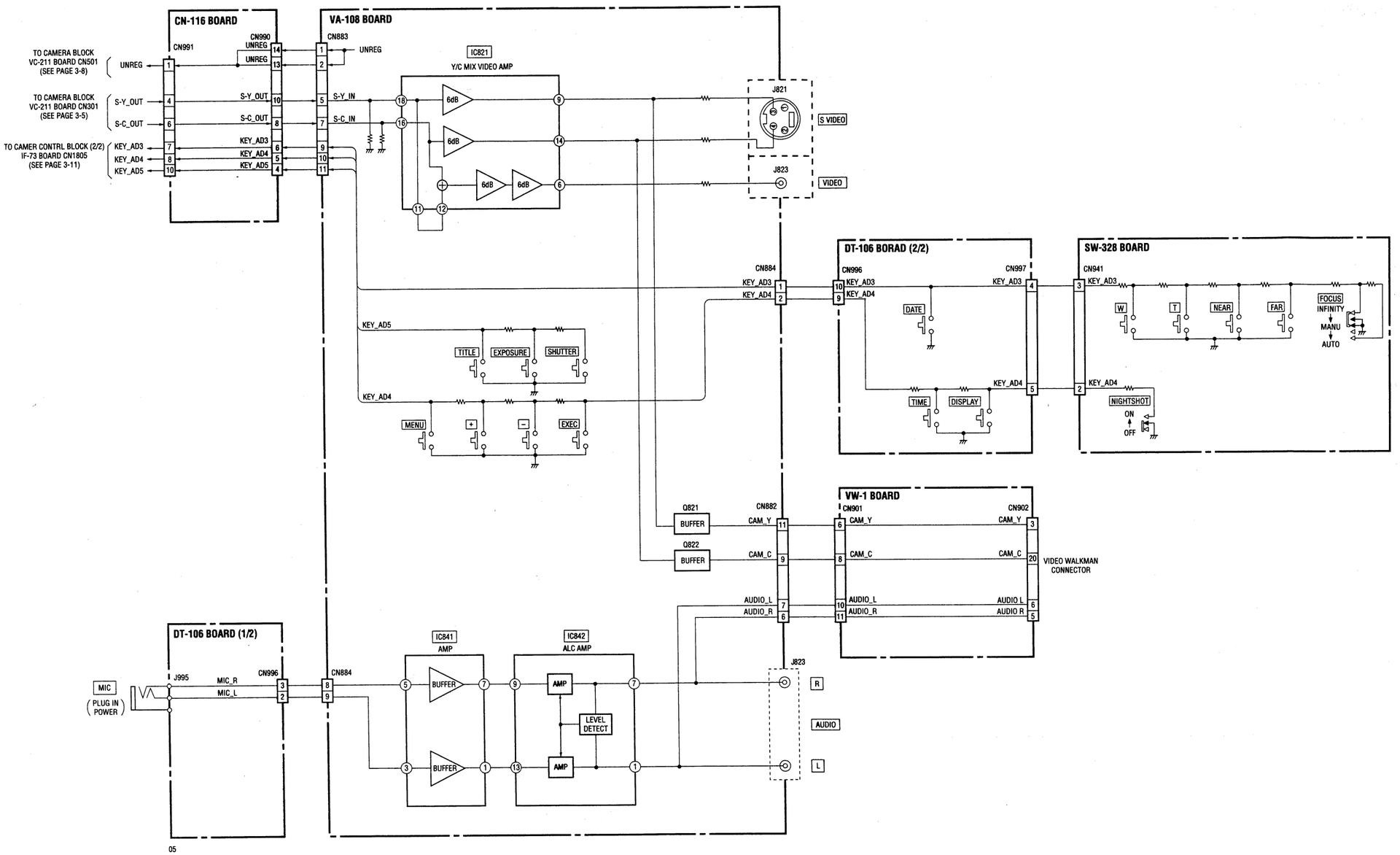


3-4. CAMERA CONTROL (2/2) BLOCK DIAGRAM

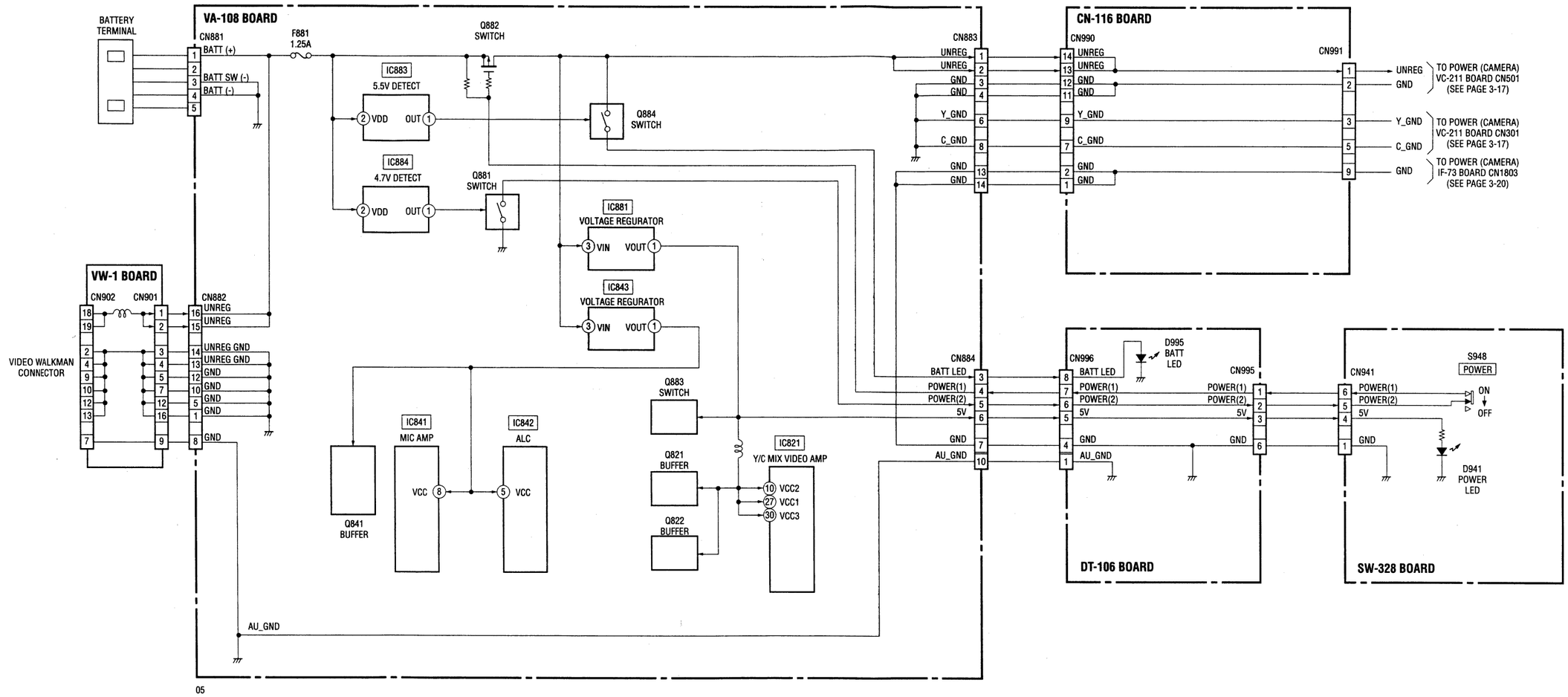


05

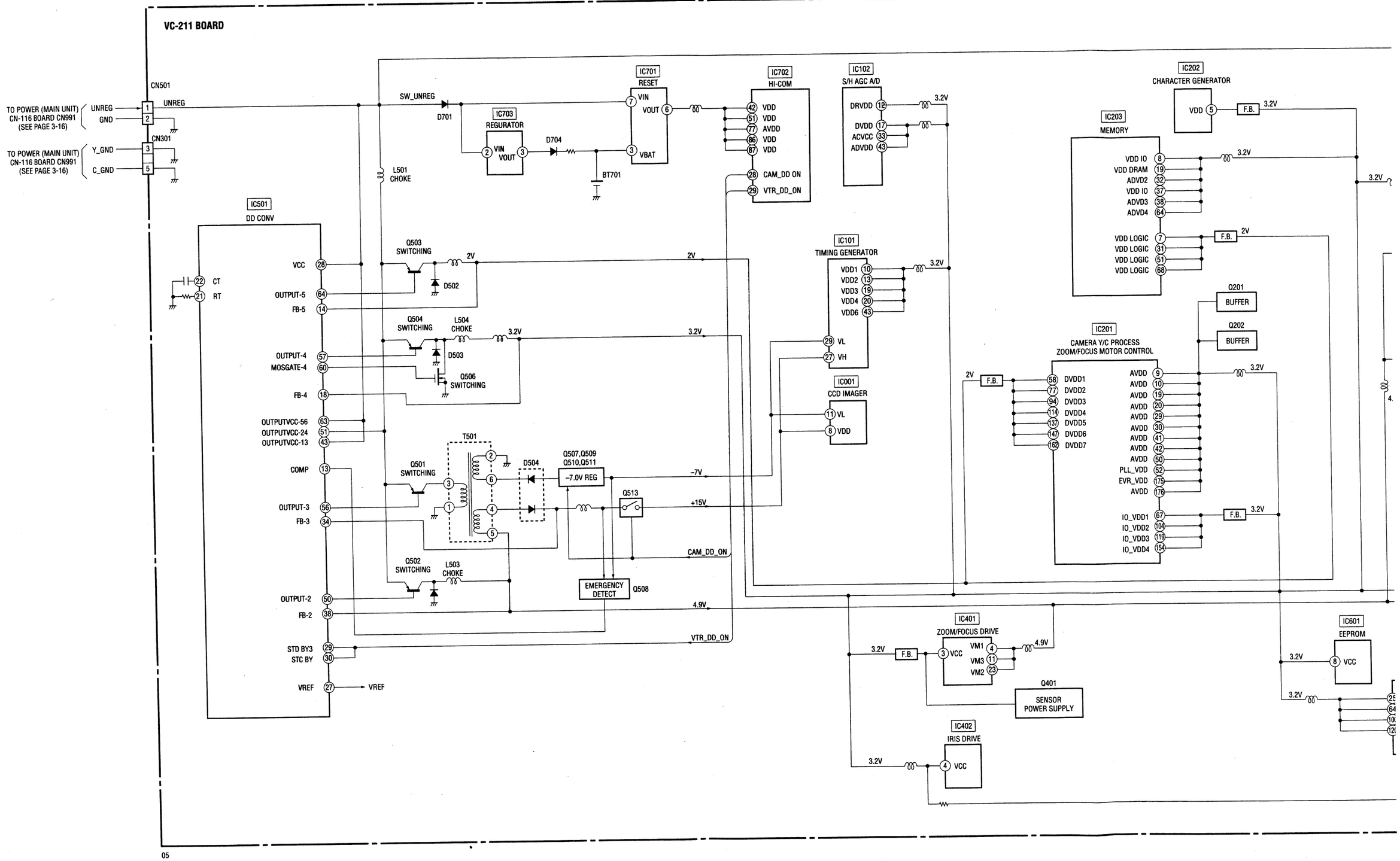
3-5. VIDEO OUT, AUDIO BLOCK DIAGRAM



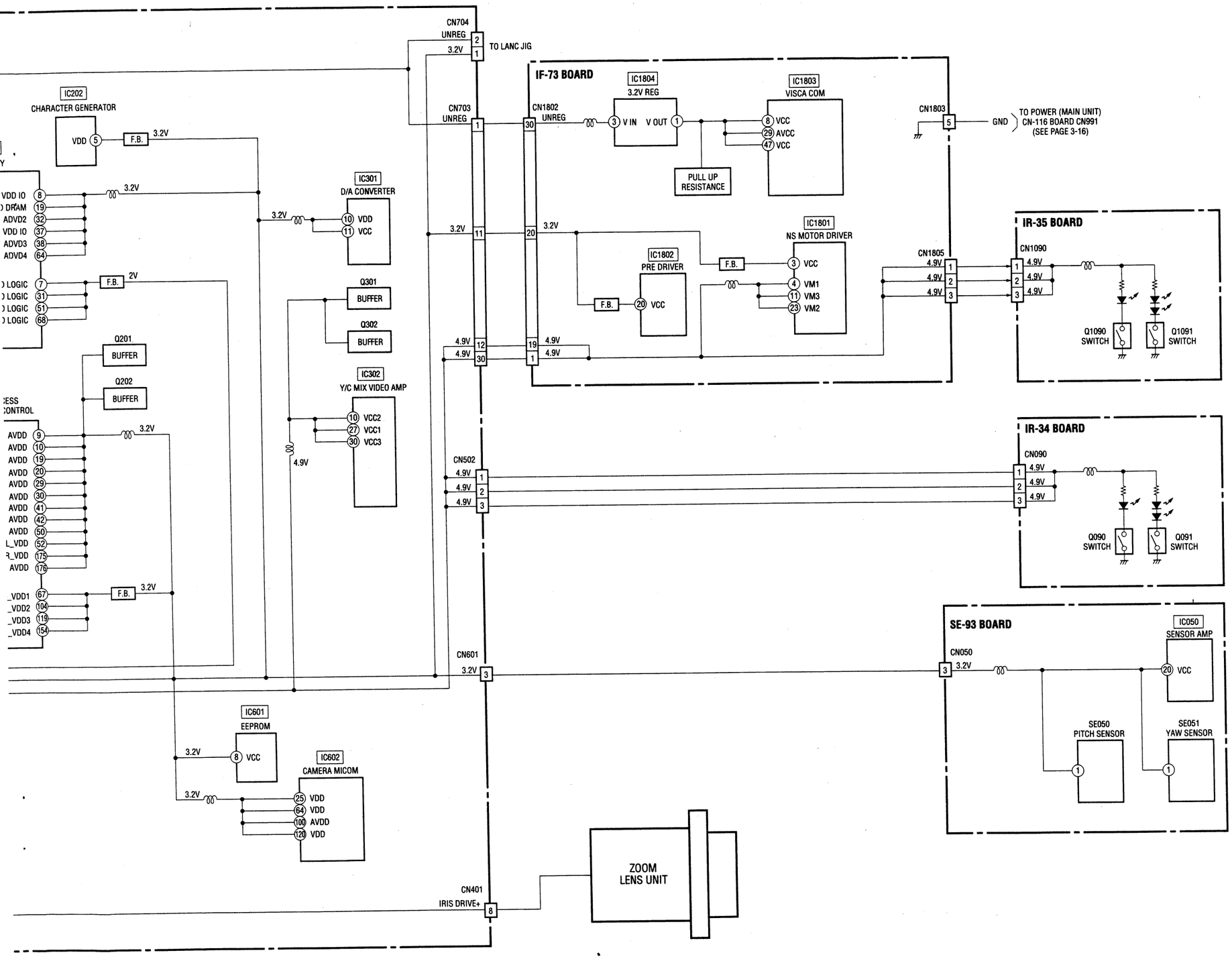
3-6. POWER (MAIN UNIT) BLOCK DIAGRAM



3-7. POWER (CAMERA) BLOCK DIAGRAM

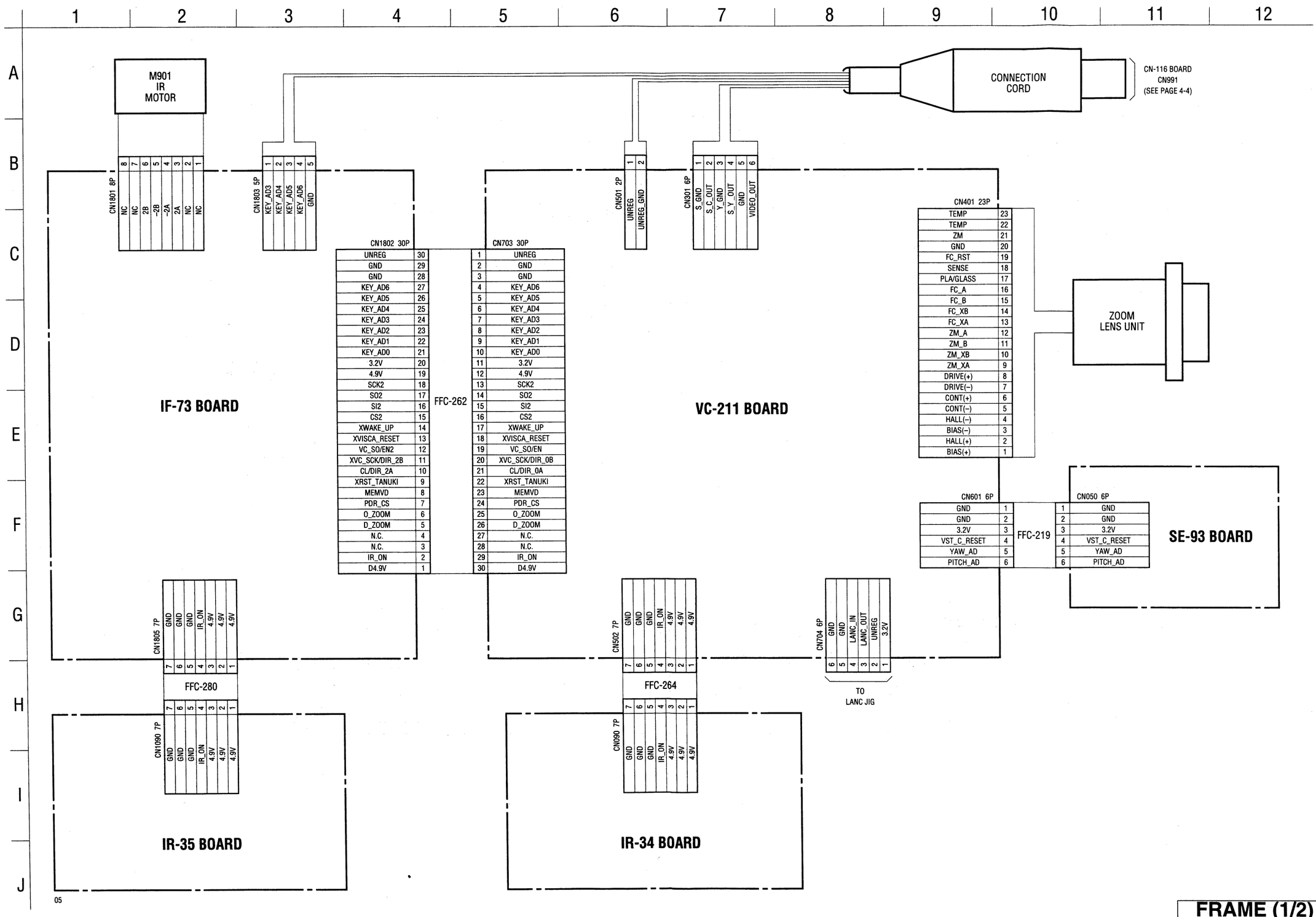


05


CN704
UNREG
3.2V
TO LANC JIG
IF-73 BOARD
IC1804
3.2V REG
IC1803
VISCA COM
CN1802
UNREG
V IN
V OUT
PULL UP RESISTANCE
CN1803
GND
TO POWER (MAIN UNIT)
CN-116 BOARD CN991
(SEE PAGE 3-16)
IC202
CHARACTER GENERATOR
VDD
F.B.
CN703
UNREG
IC301
D/A CONVERTER
IC1801
NS MOTOR DRIVER
IC1802
PRE DRIVER
IR-35 BOARD
CN1090
CN1805
Q1090
SWITCH
Q1091
SWITCH
Q301
BUFFER
Q302
BUFFER
Q201
BUFFER
Q202
BUFFER
IC302
Y/C MIX VIDEO AMP
IR-34 BOARD
CN090
CN502
Q090
SWITCH
Q091
SWITCH
SE-93 BOARD
IC050
SENSOR AMP
CN050
SE050
PITCH SENSOR
SE051
YAW SENSOR
CN601
IC601
EEPROM
IC602
CAMERA MICOM
ZOOM
LENS UNIT
CN401
IRIS DRIVE+

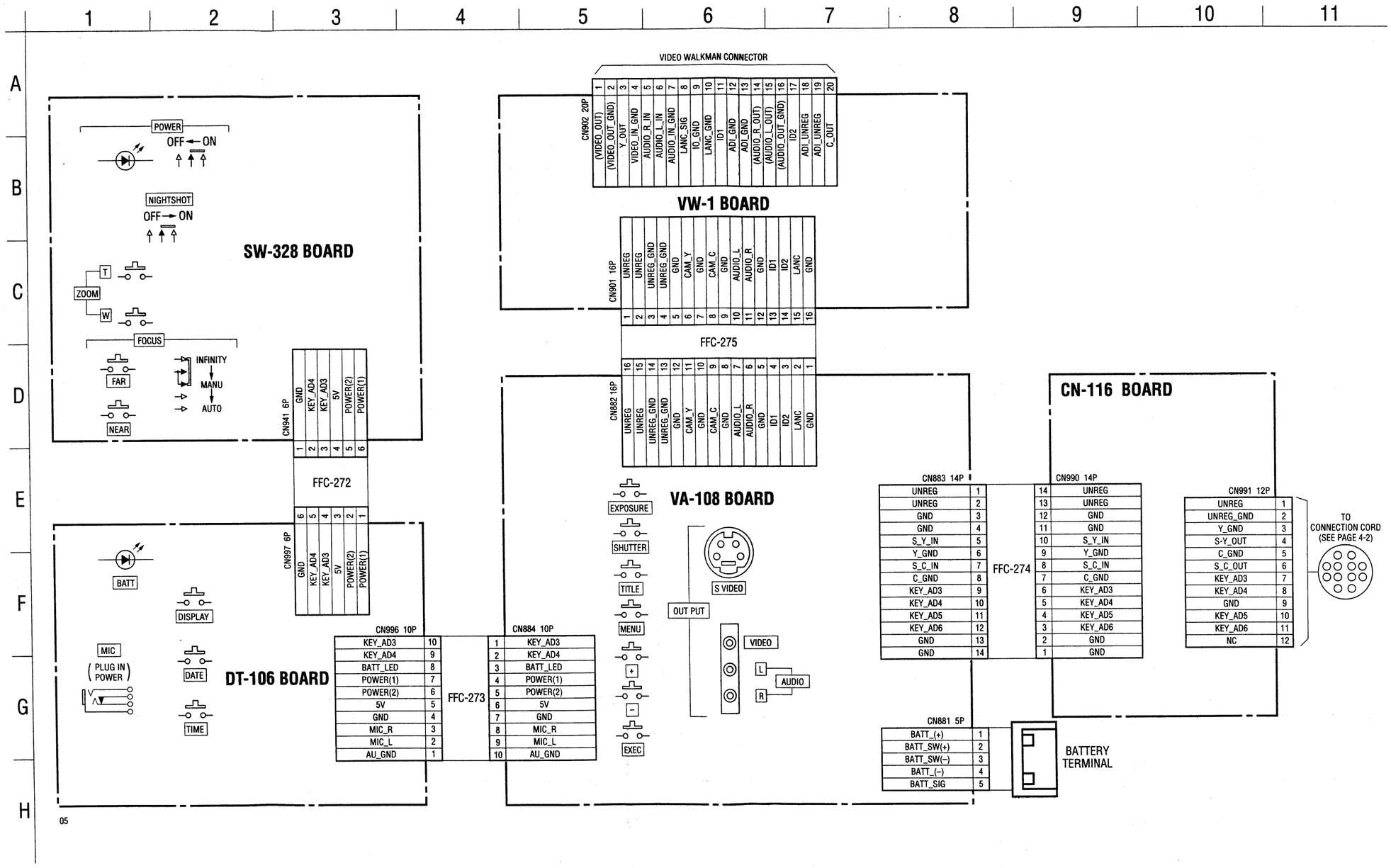
SECTION 4
SCHEMATIC DIAGRAMS

4-1. FRAME (1/2) SCHEMATIC DIAGRAM



FRAME (1/2)

4-2. FRAME (2/2) SCHEMATIC DIAGRAM



SECTION 5
ADJUSTMENTS

NTSC model : CVX-V18NS
PAL model : CVX-V18NSP

5-1. PREPARATIONS BEFORE ADJUSTMENT

5-1-1. List of Service Tools

- Oscilloscope
- Regulated power supply
- Vectorscope
- Frequency counter
- Color monitor
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0 ND filter 0.3	J-6080-808-A J-6080-818-A	White balance check White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander (RM-95 upgraded). Note	J-6082-053-B	
J-6	Clear chart for pattern box	J-6080-621-A	
J-7	CPC jig	J-649-193-0A	
J-8	Siemens star	J-6080-875-A	Flange back check
J-9	Mini pattern box	J-6082-353-B	Flange back Adjustment

Note: If the microprocessor IC in the adjusting remote commander is not the new microprocessor (UPD7503G-C56-12), the pages cannot be switched.
In this case, replace with the new microprocessor (8-759-148-35).

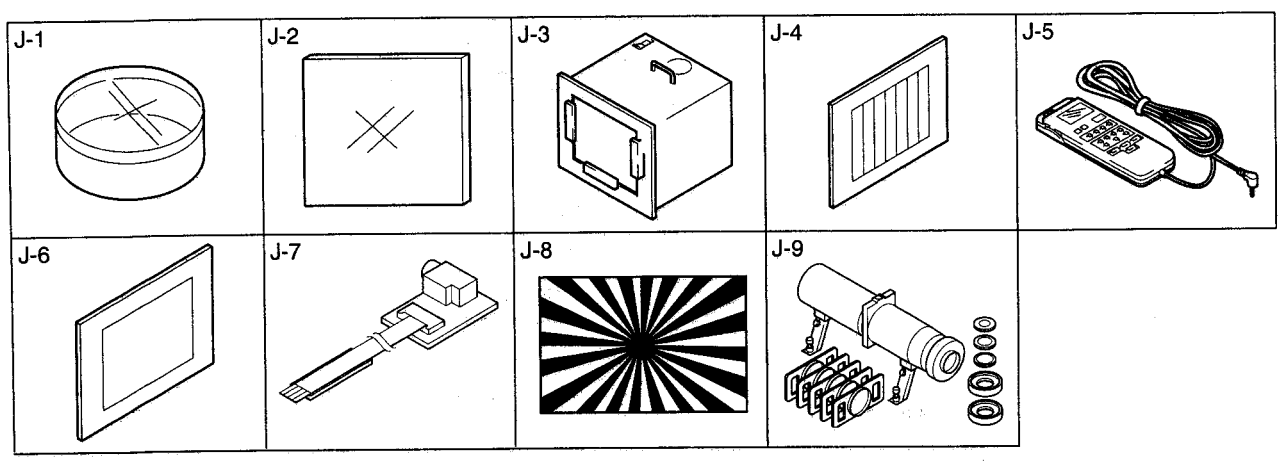


Fig. 5-1-1

5-1-2. Preparations

Note 1: For details of how remove the cabinet and boards, refer to "2. DISASSEMBLY".

1) Connect the equipment for adjustments according to Fig. 5-1-3.
2) Connect the adjusting remote commander to the CN704 on the VC-211 board via CPC jig (J-649-193-0A).

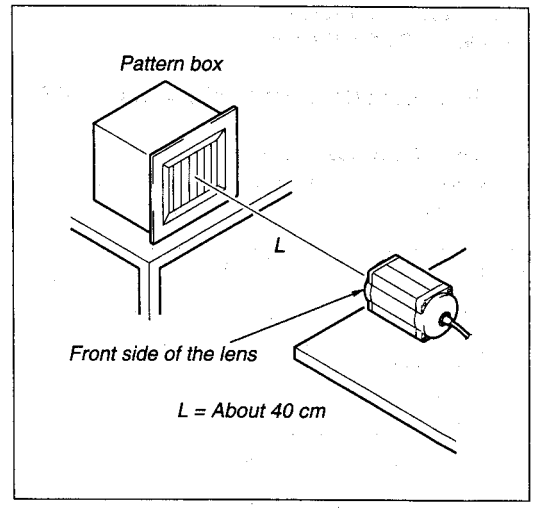


Fig. 5-1-2

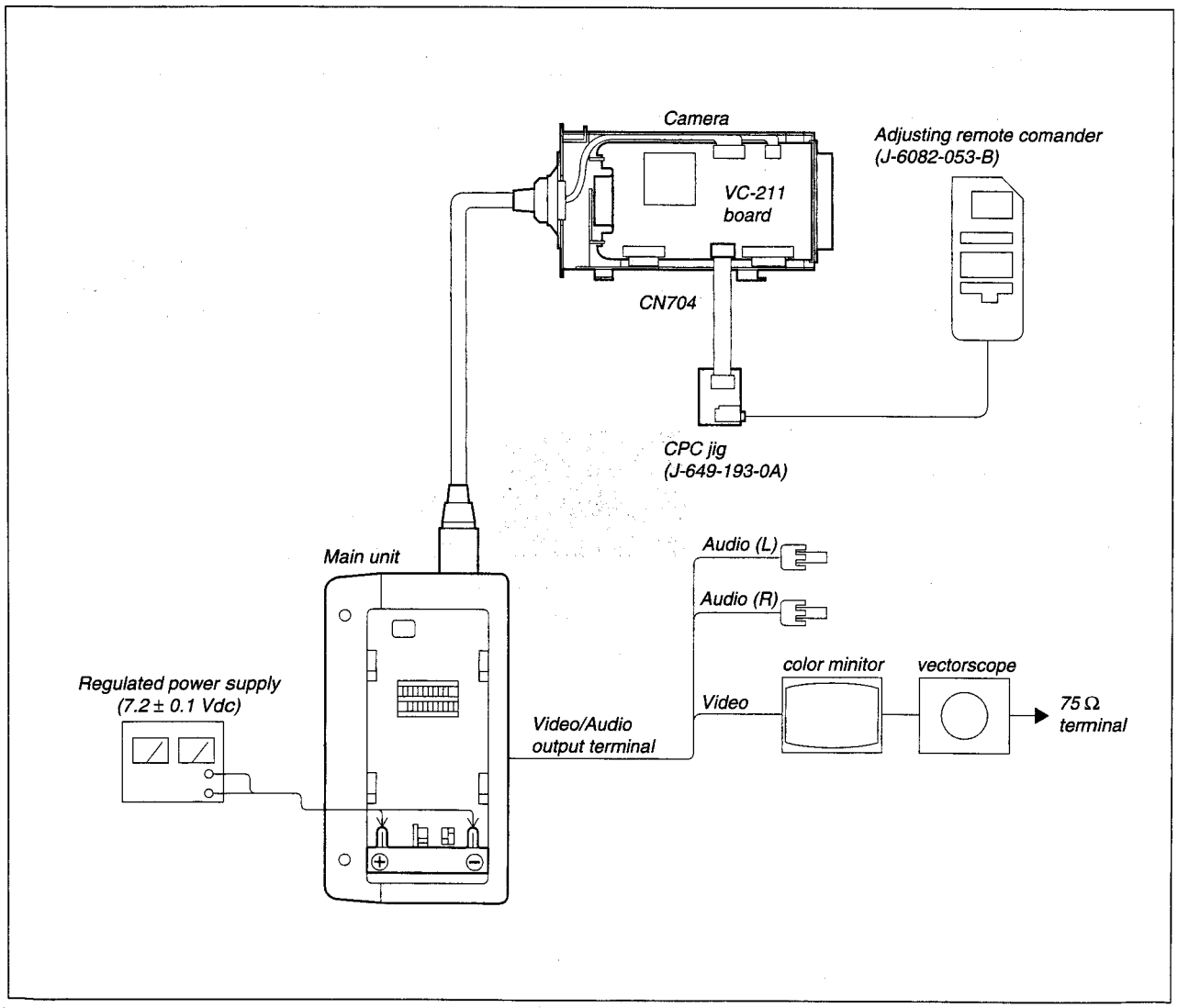


Fig. 5-1-3

5-1-3. Precautions

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments.

1. POWER switch (Main unit) ..... ON
2. NIGHT SHOT switch (Main unit) ..... OFF
3. FOCUS switch (Main unit) ..... AUTO

2. Order of Adjustments

Basically carry out adjustments in the order given.

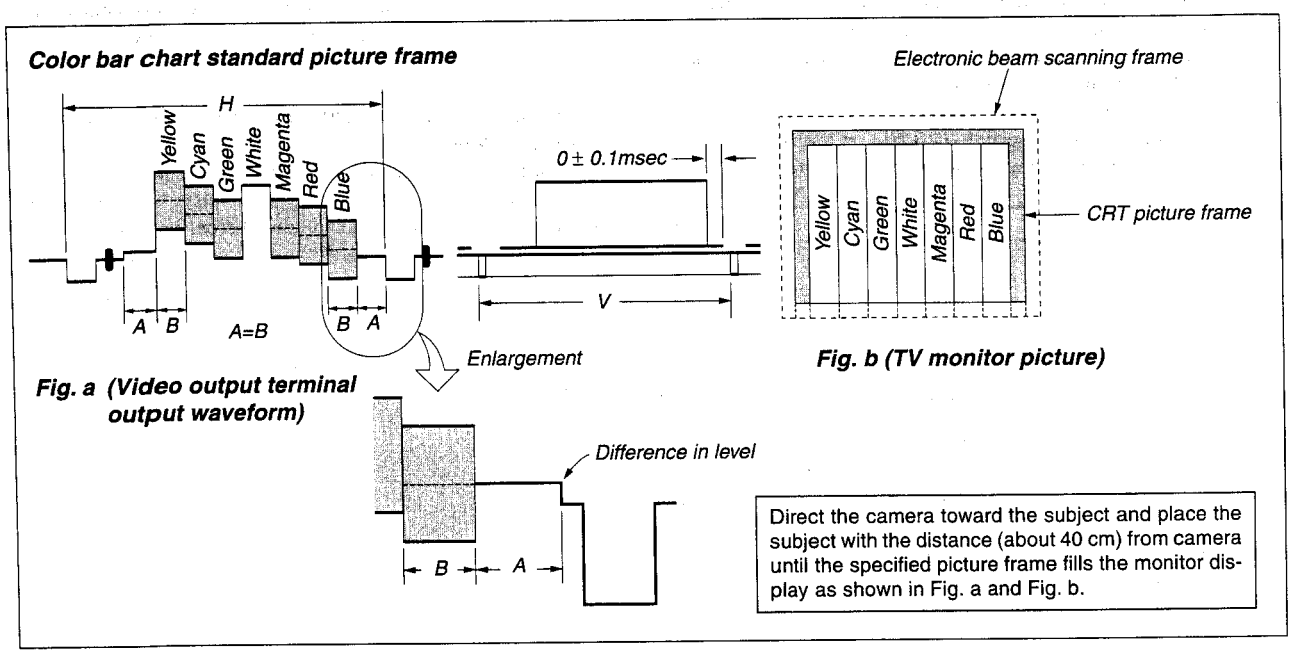


Fig. 5-1-4

3. Subjects

1) Color bar chart (Standard picture frame).
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-4. (Standard picture frame)
2) Clear chart (Standard picture frame)
   Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Chart for flange back adjustment
   Join together a piece of white A0 size paper (1189mm × 841 mm) and a piece of black paper to make the chart shown in Fig. 5-1-5.

Note: Use a non-reflecting and non-glazing vellum paper. The size must be A0 or larger and the joint between the white and black paper must not have any undulations.

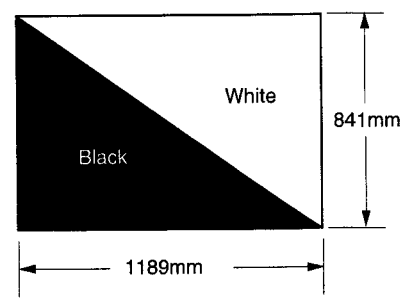


Fig. 5-1-5

5-1-4. Adjusting Remote Commander

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Used Adjusting Remote Commander

1) Connect the adjusting remote commander to the CN704 on the VC-211 board via CPC jig (J-649-193-0A).
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).
3) Turn on the power with the POWER switch of the unit.

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 5-1-6.

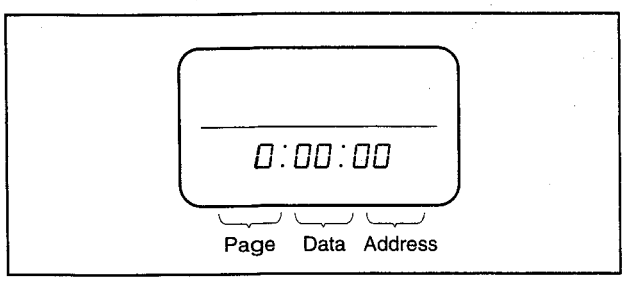


Fig. 5-1-6

4) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH + button is pressed, and decreases when the EDIT SEARCH – button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table 5-1-1

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data in the nonvolatile memory. (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed)

2. Precautions Upon Using the Adjusting Remote Commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

5-1-5. Data Processing

The calculation of the DDS display and adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 5-1-2. indicates the hexadecimal notation- the decimal notation, calculation table.

Hexadecimal nontation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d) ②	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note : ( ) indicate the adjusting remote control unit display.

(Example) In the case that the adjusting remote control unit display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 5-1-2

5-1-6. Adjusting Items when Replacing a Board or Main Parts

When replacing a board or main parts, adjust the items indicated by ● in the following table.

Adjustment	Replaced parts			
	Lens device	VC-211 board (COMPLETE)	VA-108 board (COMPLETE)	IC001 (CCD BLOCK ASSY)
Y OUT level adj.		●	●	
C OUT level adj.		●	●	
28 MHz origin oscillation adj.		●		
Lens type adj.	●	●		
HALL adj.	●	●		
Flange back adj.	●	●		●
Color reproduction adj.		●		●
IRIS IN/OUT adj.	●	●		●
Auto white balance standard data input		●		●
Auto white balance adj.		●		●

5-2. INITIALIZATION OF D, E, F PAGE DATA

1. Initializing D, E, F Page Data

Note 1: If "Initializing D, E, F Page Data" is performed, all data of the D page, E page and F page will be initialized.

Note 2: If the D, E, F page data has been initialized, "Modification of D, E, F page Data" and all adjustments need to be performed again.

Adjustment Page	D
Adjustment Address	00 to FF
Adjustment Page	E
Adjustment Address	00 to FF
Adjustment Page	F
Adjustment Address	10 to FF

Initializing Method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 00, set data: 55 (NTSC) or data: 51 (PAL), and press the PAUSE button of the adjusting remote commander.
3) Select page: 2, address: 01, set data: 55 (NTSC) or data: 51 (PAL), and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 02, and check that the data is "01".
5) Select page: 3, address: 00, set data: 29, and press the PAUSE button of the adjusting remote commander.
6) Select page: 3, address: 01, set data: 29, and press the PAUSE button of the adjusting remote commander.
7) Select page: 0, address: 01, and set data: 00.
8) Perform "Modification of D, E, F Page Data".

2. Modification of D, E, F Page Data

If D, E, F PAGE data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

Note: If copy the data built in the different model, the this unit may not operate.

3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.
5) After changing the data, select page: 0, address: 01, and set data: 00.

3. D Page Table

Note 1: Fixed data-1: Initialized Data. (Refer to "1. Initializing D, E, F Page Data")
Fixed data-2: Modified Data. (Refer to "2. Modification of D, E, F Page Data")

Address	Initial Value		Remark
	NTSC	PAL	
00 to 12	Fixed data-1 (Initialized data)		
13	Fixed data-2		
14 to16	Fixed data-1 (Initialized data)		
17	Fixed data-2		
18 to FF	Fixed data-1 (Initialized data)		

4. E Page Table

Note 1: Fixed data-1: Initialized Data. (Refer to "1. Initializing D, E, F Page Data")
Fixed data-2: Modified Data. (Refer to "2. Modification of D, E, F Page Data")

Address	Initial Value		Remark
	NTSC	PAL	
00 to 09	Fixed data-1 (Initialized data)		
0A	42	42	G-CAM version adjustment
0B	06	06	
0C, 0D	Fixed data-1 (Initialized data)		
0E	Fixed data-2		
0F to 1D	Fixed data-1 (Initialized data)		
1E	Fixed data-2		
1F to 25	Fixed data-1 (Initialized data)		
26	Fixed data-2		
27 to 2A	Fixed data-1 (Initialized data)		
2B	11	11	Lens type adjustment
2C	83	83	
2D	FB	FB	
2E	F5	F5	
2F to 4E	Fixed data-1 (Initialized data)		
4F	Fixed data-2		
50 to E4	Fixed data-1 (Initialized data)		
E5	Fixed data-2		
E5 to FF	Fixed data-1 (Initialized data)		

5. F Page Table

Note 1: Fixed data-1: Initialized Data. (Refer to "1. Initializing D, E, F Page Data")
Fixed data-2: Modified Data. (Refer to "2. Modification of D, E, F Page Data")

Address	Initial Value		Remark
	NTSC	PAL	
10 to 1B	Fixed data-1 (Initialized data)		
1C	Fixed data-2		
1D			
1E to 20	Fixed data-1 (Initialized data)		
21	52	52	G-CAM flip adjustment
22 to 25	Fixed data-1 (Initialized data)		
26	94	96	Lens type adjustment
27 to 2B	Fixed data-1 (Initialized data)		
2C	A0	A0	28MHz origin oscillation adjustment
2D, 2E	Fixed data-1 (Initialized data)		
2F	80	80	HALL adjustment
30	80	80	
31	Fixed data-2		
32			
33	Fixed data-1 (Initialized data)		
34	1B	1B	Color reproduction adjustment
35	Fixed data-1 (Initialized data)		
36	42	42	Color reproduction adjustment
37 to 39	Fixed data-1 (Initialized data)		
3A	89	89	Auto white balance adjustment
3B	59	59	
3C	38	38	IRIS IN/OUT adjustment
3D	41	41	
3E	25	25	Flange back adjustment
3F	00	00	
40	19	19	
41	00	00	
42	35	35	
43 to 48	Fixed data-1 (Initialized data)		
49	6B	6B	Y OUT level adjustment
4A	Fixed data-1 (Initialized data)		
4B	9A	9A	C OUT level adjustment
4C to 6F	Fixed data-1 (Initialized data)		
70	3B	3B	Auto white balance reference data input
71	FF	FF	
72	56	56	
73	7D	7D	
74, 75	Fixed data-1 (Initialized data)		
76	1B	1B	Flange back adjustment
77	54	54	
78	25	25	
79	80	80	
7A	10	10	
7B	FF	FF	
7C to 82	Fixed data-1 (Initialized data)		
83	Fixed data-2		
84 to 8C	Fixed data-1 (Initialized data)		
8D	00	00	G-CAM version adjustment
8E	80	80	
8F to EF	Fixed data-1 (Initialized data)		
F0 to F4	Fixed data-2		
F5	FD	FD	Color reproduction adjustment
F6	F8	F6	
F7	Fixed data-2		
F8			
F9 to FF	Fixed data-1 (Initialized data)		

5-3. ELECTRICAL ADJUSTMENTS

1. Y OUT Level Adjustment

Set the Y signal output level

Subject	Not required
Measurement Point	VIDEO output terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	49
Specified Value	A = 286 ± 50 mV (NTSC) A = 300 ± 50 mV (PAL)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 49, change the data and set the SYNC level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.

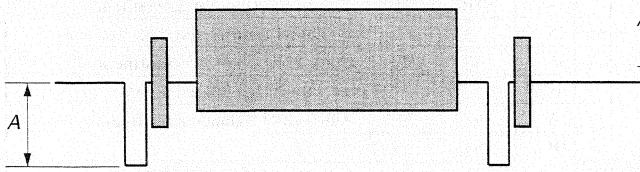


Fig. 5-3-1

2. C OUT Level Adjustment

Set the Chroma signal output level

Subject	Not required
Measurement Point	VIDEO output terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	4B
Specified Value	A = 286 ± 50 mV (NTSC) A = 300 ± 50 mV (PAL)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 4B, change the data and set the burst level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.

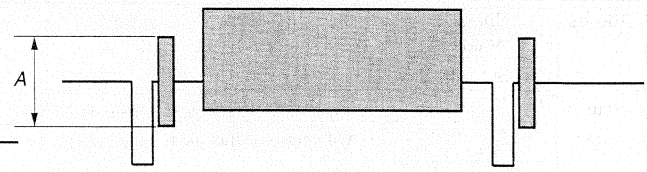


Fig. 5-3-2

3. 28 MHz Origin Oscillation Adjustment

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required
Measurement Point	Pin ㉑ of CN703 on VC-211 board
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	2C
Specified Value	f = 14318181 ± 68 Hz (NTSC) f = 14187500 ± 69 Hz (PAL)

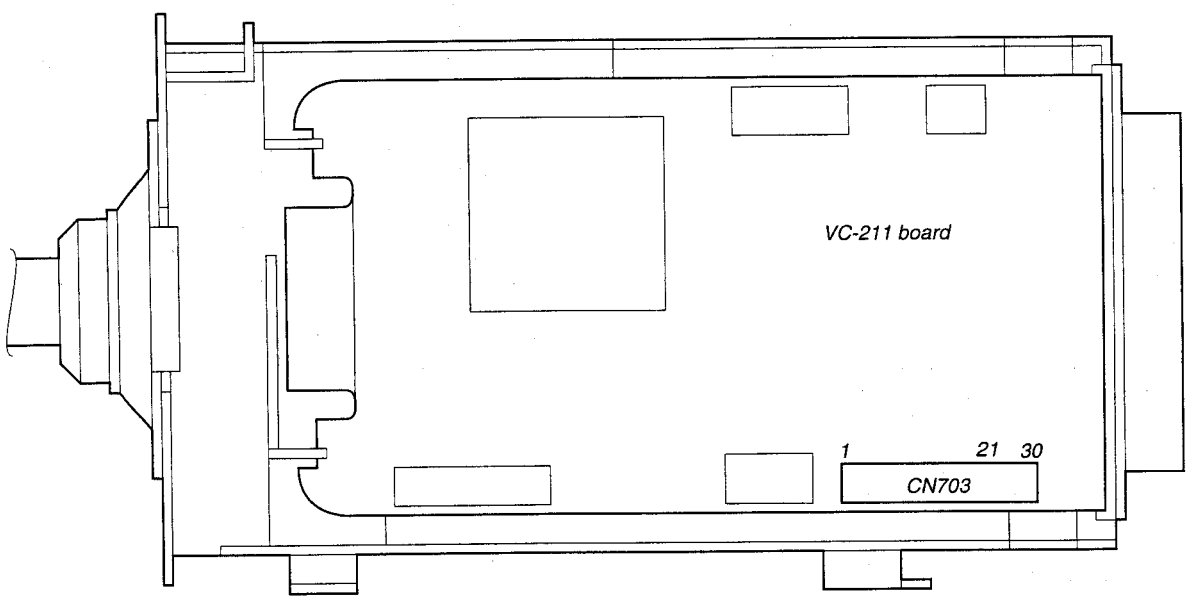
Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 2C, change the data and set the clock frequency (f) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.

• PARTS LOCATION DIAGRAM FOR 28 MHz ORIGIN OSCILLATION ADJUSTMENT



5-4. CAMERA SYSTEM ADJUSTMENT

Before perform the camera system adjustments, check that the specified value of
"Y OUT Level Adjustment", "C OUT Level Adjustment" and "28MHz Origin Oscillation Adjustment" of "ELECTRICAL ADJUSTMENTS" are satisfied.

1. Lens Type Adjustment

Judge whether the lens used in the set is a plastic or glass, then enter the data according to the lens material.

Subject	Not required
Measurement Point	DDS displayed data of TV monitor (Note 1)
Measuring Instrument	
Adjustment Address	Page: E, Address: 2B to 2E Page: F, Address: 26

Note 1: The right two digits of the displayed data at the right bottom side of the TV monitor.

00 00XX
└→ D_1

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, and set data: 02, and press the PAUSE button of the adjusting remote commander.
3) Select page: 0, address: 03, and set data: 19.
4) Select page: 2, address: 01, and set data: 65.
5) Read the DDS displayed data (Note 1), and take the lower two digits as D_1.
   When D_1 = 00 (glass lens)
   Perform steps 6) onwards.
   When D_1 = 01 (plastic lens)
   Perform steps "Processing after Completing Adjustments".
6) Write data in page: E, address: 2B to 2E, and page: F, address: 26 as shown in the following table.

Page	Address	Data
E	2B	11
E	2C	83
E	2D	FB
E	2E	F5
F	26	96

Processing after Completing Adjustments:

1) Select page: 2, address: 01, and set data: 00.
2) Select page: 0, address: 03, and set data: 00.
3) Select page: D, address: 11, and set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.

2. G-CAM Flip Adjustment

Set the color reproduction conditions to optimum.

Subject	Color bar chart standard picture frame
Measurement Point	DDS displayed data of TV monitor (Note 1)
Measuring Instrument	
Adjustment Page	F
Adjustment Address	21

Note 1: The right four digits of the displayed data at the right bottom side of the TV monitor.

00 XXXX
→ S_2
→ S_1

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, and set data: 02, and press the PAUSE button of the adjusting remote commander.
3) Select page: 0, address: 03, and set data: 16.
4) Read the DDS displayed data (Note 1), and upper two digits data is named S_1, and lower two digits data is named S_2.
   When $S_1 < S_2$
   Perform steps 5) onwards.
   When $S_1 \geqq S_2$
   Perform steps "Processing after Completing Adjustments".
5) Select page: F, address: 21, and set data:
   when the read data is "D2", change to "52", the read data is "52", change to "D2" (initial value is 52), and press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 0, address: 03, and set data: 00.
2) Select page: D, address: 11, and set data: 00, and press the PAUSE button
   of the adjusting remote commander.
3) Select page: 0, address: 01, and set data: 00.

3. G-CAM Version Adjustment

Confirm the G-CAM version, and enter the data according to the version.

Subject	Not required
Measurement Point	Displayed data of page: 2, address: 04
Measuring Instrument	on adjusting remote commander
Adjustment Address	Page: E, Address: 0A, 0B Page: F, Address: 8D, 8E

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 04, and read data is D_I.
   When D_I = FF
   Perform steps 3) onwards.
   When $D_I \neq$ FF
   Perform steps "Processing after Completing Adjustments".
3) Write data in page: E, address: 0A, 0B, and page: F, address: 8D, 8E as shown in the following table.

Page	Address	Data
E	0A	72
E	0B	76
F	8D	D3
F	8E	00

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.

4. HALL Adjustment

For detecting the position of lens iris, adjust the HALL AMP gain and offset.

Subject	Not required
Measurement Point	DDS displayed data of TV monitor (Note 3)
Measuring Instrument	
Adjustment Page	F
Adjustment Address	2F, 30
Specified Value	7E to 82 during IRIS OPEN (Note 1) 13 to 17 during IRIS CLOSE (Note 2)

Note 1: Select page: 2, address: 01, and set data: 01, and press the PAUSE button of the adjusting remote commander.

Note 2: Select page: 2, address: 01, and set data: 03, and press the PAUSE button of the adjusting remote commander.

Note 3: The right two digits of the displayed data at the right bottom side of the TV monitor.

00 00XX
└──→Object data

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 03, and set data: 03.
3) Select page: D, address: 11, and set data: 02, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 01, and set data: 03, and press the PAUSE button of the adjusting remote commander.
5) Select page: F, address: 30, and set data: 80, and press the PAUSE button of the adjusting remote commander.
6) Select page: F, address: 2F, and set data: 40, and press the PAUSE button of the adjusting remote commander.
7) Read the DDS displayed data (Note 3), and this data is named W_2.
8) Select page: F, address: 2F, and set data: 30, and press the PAUSE button of the adjusting remote commander.
9) Read the DDS displayed data (Note 3), and this data is named W_1.
10) Select page: 2, address: 01, and set data: 01, and press the PAUSE button of the adjusting remote commander.
11) Read the DDS displayed data (Note 3), and this data is named K_1.
12) Select page: F, address: 2F, and set data: 40, and press the PAUSE button of the adjusting remote commander.
13) Read the DDS displayed data, and this data is named K_2.
14) Convert W_1, W_2, K_1, K_2, to decimal notation, and obtain W_1', W_2', K_1', K_2'.
(Refer to table 5-1-2. "Hexadecimal notation - decimal notation conversion table")
15) Calculate X1' using the following equations. (decimal notation calculation)
$A' = W_2' + K_1' - W_1' - K_2'$ ..... Equation 1
$B' = W_1' - K_1'$ ..... Equation 2
$X1' = [1712 + (48 \times A') - (16 \times B')] / A'$ ..... Equation 3
16) Convert X_1' to hexadecimal notation, and obtain X_1.
(Round off to one decimal place)
17) Select page: F, address: 2F, and set data: X_1, and press the PAUSE button of the adjusting remote commander.
18) Select page: 2, address: 01, and set data: 01, and press the PAUSE button of the adjusting remote commander.
19) Select page: F, address: 30, change data and adjusting the DDS displayed data to "80".
20) Press the PAUSE button of the adjusting remote commander.
21) Select page: 2, address: 01, and set data: 03, and press the PAUSE button of the adjusting remote commander.
22) Read the DDS displayed data, and this data is named K_0.
If K_0 lies within the "13" to "17" range, perform "Processing after Completing adjustments".
If K_0 lies outside the range, perform the following adjustments.
23) Convert K_0 to decimal notation, and obtain K_0'
24) Calculate X_2' using the following equations (decimal notation calculation).
$C' = K_0' - B' - 21$ ..... Equation 4
$X_2' = [(107 - B') \times (X_1' - 48) + (48 \times C')] / C'$ ... Equation 5
(X_1' and B' are values obtained from "Equation 2" and "Equation 3")
25) Convert X_2' to hexadecimal notation, and obtain X_2.
(Round off to one decimal place)
26) Select page: F, address: 2F, and set data: X2, and press the PAUSE button of the adjusting remote commander.
27) Select page: 2, address: 01, and set data: 03, and press the PAUSE button of the adjusting remote commander.
28) Select page: F, address: 30, change data and adjusting the DDS displayed data to "15".
29) Press the PAUSE button of the adjusting remote commander.
30) Select page: 2, address: 01, and set data: 01, and press the PAUSE button of the adjusting remote commander.
31) Check the DDS displayed data lies within the "7E" to "82" range.

Processing after Completing Adjustments:

1) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: D, address: 11, and set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 0, address: 03, and set data: 00.
4) Select page: 0, address: 01, and set data: 00.

5. Flange Back Adjustment (Using the mini-pattern box)

The inner focus lens flange back adjustment is carried out automatically. If disordered, the focus will be deviated during auto/manual focusing.

Subject	Siemens star chart with ND filter for mini-pattern box (Note)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3E to 42, 76 to 7B

Note: Siemens star chart used is a darker one.

Switch setting:
NIGHT SHOT switch ..... OFF

Preparation:
Install the mini-pattern box as shown below.
Note: The attachment lens is not used.

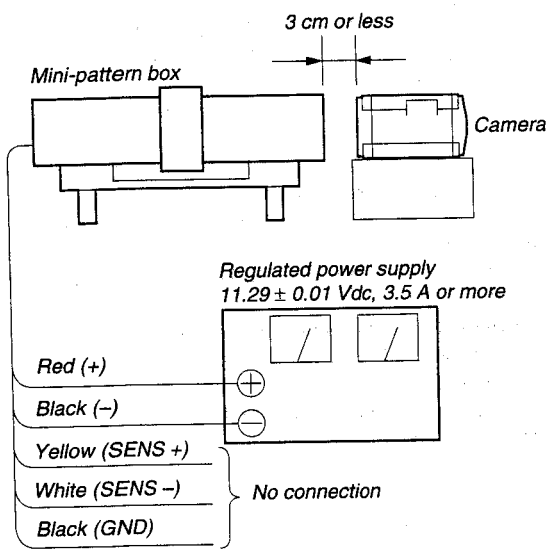


Fig. 5-4-1

Adjusting method:

1) Install the camera so that the distance between its lens surface and mini-pattern box is less than 3 cm.
2) Align both heights of camera and mini-pattern box.
3) Make sure that the output voltage of regulated power supply is 11.29 ± 0.01Vdc.
4) Confirm that the center of Siemens star chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.
5) Select page: 0, address: 01, and set data: 01.
6) Confirm that the data on page: F, addresses: 3E to 42, 76 to 7B are initial values. (see table below)

Address	Data	Address	Data
3E	25	76	1B
3F	00	77	54
40	19	78	25
41	00	79	80
42	35	7A	10
		7B	FF

7) Select page: 2, address: 02, and confirm that the data is "00".
8) Select page: 2, address: 01, set data: 13, and press the PAUSE button on the adjusting remote commander.
9) Select page: 2, address: 01, set data: 27, and press the PAUSE button.
   (The flange back adjustment is carried out, and the data are automatically entered to page: F, addresses: 3E to 42, 76 to 7B.)
10) Select page: 2, address: 02, and confirm that the data changes to "01".

Processing after Completing of Adjustments:

1) Select page: 2, address: 01, set data: 00, and press the PAUSE button.
2) Perform "Flange Back Check".

6. Flange Back Adjustment (Using the flange back adjustment chart and the subject more than 500 m away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

6-1. Flange Back Adjustment (1)

Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 230 ± 30 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3E to 42, 76 to 7B

Switch setting:

1) NIGHT SHOT switch ..... OFF

Adjusting method:

1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Select page: 0, address: 01, and set data: 01.
3) Check that the data on page: F, address: 3E to 42, 76 to 7B is the initial value. (See table below)

Address	Data	Address	Data
3E	25	76	1B
3F	00	77	54
40	19	78	25
41	00	79	80
42	35	7A	10
		7B	FF

4) Select page: 2, address: 02, and check that the data is "00".
5) Select page: 2, address: 01, set data: 13, and press the PAUSE button on the adjusting remote commander.
6) Select page: 2, address: 01, set data: 15, and press the PAUSE button of the adjusting remote commander.
   (The adjustment data will be automatically input to page: F, addresses: 3E to 42, 76 to 7B)
7) Select page: 2, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

1) Select page: 2, address: 02, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Perform "Flange Back Adjustment (2)".

6-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)"

Subject	Subject more than 500 m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3E to 42, 76 to 7B

Switch setting:

1) NIGHT SHOT switch ..... OFF

Adjusting method:

1) Set the Zoom lens to the TELE end and expose a subject that is more than 500 m away. (subject with clear contrast such as building, etc.)
   (Nearby subjects less the 500 m away should not be in the screen)
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 2, address: 02, and check that the data is "00".
4) Select page: 2, address: 01, set data: 13, and press the PAUSE button on the adjusting remote commander.
5) Place a ND filter on the lens so that the optimum image is obtain.
6) Select page: 2, address: 01, set data: 29, and press the PAUSE button of the adjusting remote commander.
   (The adjustment data is automatically input to page: F, addresses: 3E to 42, 76 to 7B)
7) Select page: 2, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

1) Select page: 2, address: 02, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Perform "Flange Back Check".

7. Flange Back Check

Subject	Siemens star chart (2.0 m from the front of the lens) (Luminance: approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	

Switch setting:

1) NIGHT SHOT switch ..... OFF

Checking method:

1) Place the Siemens star 2.0 m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
3) Select page: 2, address: 40, and set data: 02.
4) Select page: 2, address: 41, and set data: 01.
5) Shoot the Siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note 1).
8) Select page: 2, address: 21, and set data: 10.
9) Shoot the Siemens star with the zoom WIDE end.
10) Observe the TV monitor and check that the lens is focused.

Note 1: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjusting remote commander.

1) Select page: 0, address: 03, and set data: 0F.
2) Page 1 shows the state of the focus.

1 : 00 : XX
└→Odd: Focused
Even: Unfocused

Processing after Completing Adjustments:

1) Select page: 2, address: 21, set data: 00.
2) Select page: 0, address: 03, set data: 00.
3) Select page: 2, address: 40, set data: 00.
4) Select page: 2, address: 41, set data: 00.

8. Picture Frame Setting

Subject	Color bar chart standard picture frame (About 40 cm from the front of lens)
Measurement Point	VIDEO output terminal
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A = B, C = D, t = 0 ± 0.1 msec

Setting method:

1) Adjust the camera direction and zoom, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color bar chart standard picture frame".

Check on the oscilloscope

1. Horizontal period

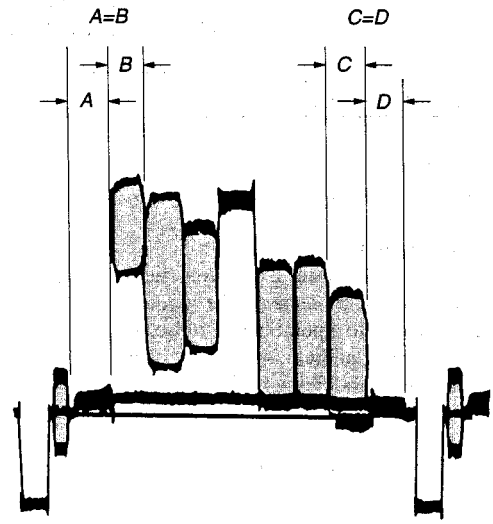


Fig. 5-4-2

2. Vertical period

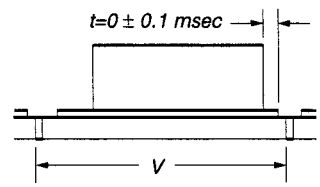


Fig. 5-4-3

Check on the TV monitor

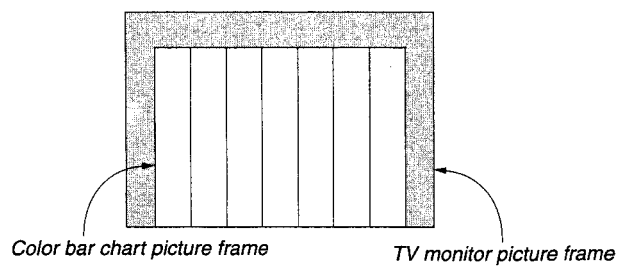


Fig. 5-4-4

9. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart standard picture frame
Measurement Point	VIDEO output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	34, 36, F5, F6
Specified Value	All color luminance points should settle within each color reproduction frame.

Switch setting:

1) DIGITAL ZOOM (Menu display) ..... OFF
2) STEADY SHOT (Menu display) ..... OFF
3) NIGHT SHOT switch ..... OFF

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 3D, and press the PAUSE button of the adjusting remote commander.
3) Select page: F, address: 25, set data: 3F, and press the PAUSE button of the adjusting remote commander.
4) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
5) Change the data of page: F, address: 34, 36, F5 and F6, and settle each color luminance point in each color reproduction frame.

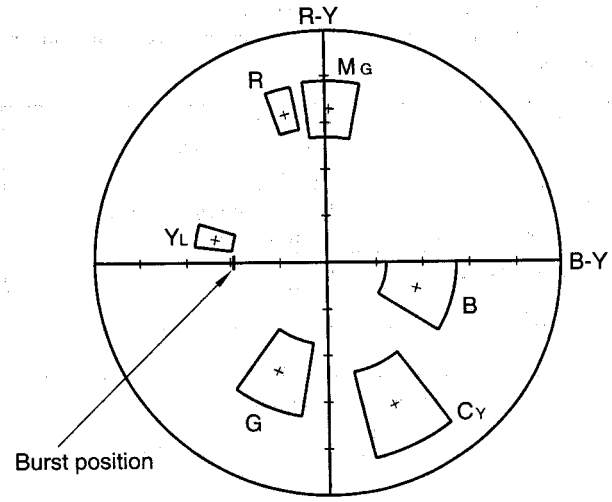
Note: Be sure to press the PAUSE button of the adjusting remote commander before changing the addresses.
If not, the new data will not be written to the memory.

6) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.

For NTSC model



For PAL model

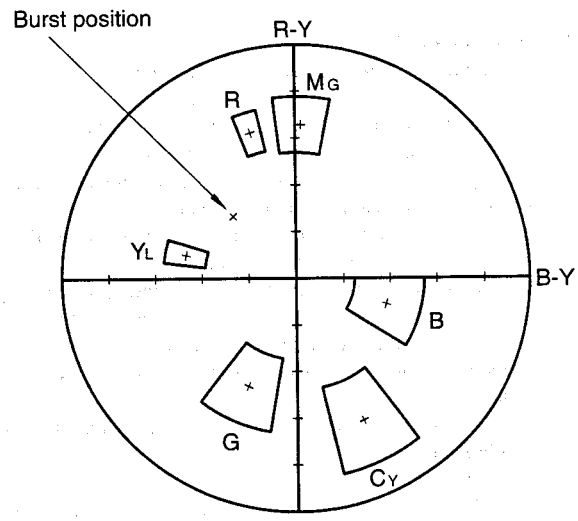


Fig. 5-4-5

10. IRIS IN/OUT Adjustment

Measure the light level and write into EEPROM for indoor/outdoor identification in auto white balance.
If it is not correct, white balance will be incorrect from standard position.

Subject	Clear chart (Color bar standard picture frame)
Measurement Point Measuring Instrument	DDS displayed data of TV monitor (Note 1)
Adjustment Page	F
Adjustment Address	3C, 3D

Note 1: The right four digits of the displayed data at the right bottom side of the TV monitor.

00 XXXX
→Lower 2 digits
→Upper 2 digits

Switch setting:

1) DIGITAL ZOOM (Menu display) ..... OFF
2) STEADY SHOT (Menu display) ..... OFF
3) NIGHT SHOT switch ..... OFF

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 03, and set data: 06.
3) Select page: D, address: 11, set data: 02, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 40, set data: 02, and press the PAUSE button of the adjusting remote commander.
5) Select page: 2, address: 01, set data: 0B, and press the PAUSE button of the adjusting remote commander.
6) Read the DDS displayed data (Note 1) , and upper two digits data is named D_1, and lower two digits data is named D_2.
7) Convert D_1 to decimal notation, and obtain D_1'. (Refer to "Table 5-1-2. Hexadecimal - decimal Conversion Table".)
8) Calculate D_3' using the following equations (decimal notation calculation).
   When $D_2 > D0$
   $D_3' = D_1' - 21$ ..... Equation 1
   When $D_2 < D0$
   $D_3' = D_1' - 22$ ..... Equation 2
9) Convert D_3' to hexadecimal notation, and obtain D_3.
10) Select page: F, address: 3C, set data: D_3, and press the PAUSE button of the adjusting remote commander.
11) Select page: 2, address: 01, set data: 09, and press the PAUSE button of the adjusting remote commander.
12) Read the DDS displayed data (Note 1), and upper two digits data is named D_4, and lower two digits data is named D_5.
13) Convert D_4 to decimal notation, and obtain D_4'.
14) Calculate D_6' using the following equations (decimal notation calculation).
   When $D_5 > F0$
   $D_6' = D_4' - 13$ ..... Equation 3
   When $D_5 < F0$
   $D_6' = D_4' - 14$ ..... Equation 4
15) Convert D_6' to hexadecimal notation, and obtain D_6.
16) Select page: F, address: 3D, set data: D_6, and press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 2, address: 40, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: D, address: 11, set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 03, and set data: 00.
5) Select page: 0, address: 01, and set data: 00.

11. Auto White Balance Standard Data Input

Subject	Clear chart (Color bar chart standard picture frame)
Adjustment Page	F
Adjustment Address	70 to 73

Note 1: Perform "9. Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 2, address: 02 is 00. If not, turn the power of the unit OFF/ON.

Switch setting:

1) STEADY SHOT (Menu display) ..... OFF
2) NIGHT SHOT switch ..... OFF

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Wait for 2 seconds.
3) Select page: 2, address: 01, set data: 11, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 01, set data: 0D, and press the PAUSE button of the adjusting remote commander.
   (When the standard data is take in, the data will be automatically input to page: F, address: 70 to 73)
5) Select page: 2, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

1) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Perform "Auto White Balance Adjustment".

12. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color bar chart standard picture frame)
Filter	Filter C14 for color temperature correction
Measurement Point	DDS displayed data of TV monitor (Note 2)
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3A, 3B
Specified Value	R ratio: 2B40 to 2BC0 B ratio: 5E40 to 5EC0

Note 1: Perform "Auto White Balance Reference Data Input" before this adjustment.

Note 2: The right four digits of the displayed data at the right bottom side of the TV monitor.

00 XXXX
└→Object data

Switch setting:

1) NIGHT SHOT switch ..... OFF

Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: D, address: 11, set data: 02, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 01, set data: 3F, and press the PAUSE button of the adjusting remote commander.
5) Select page: 0, address: 03, and set data: 04.
6) Select page: F, address: 3A, change the data and adjust the average value
   of the DSS displayed data (Note 2) to the R ratio specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Select page: 0, address: 03, and set data: 05.
9) Select page: F, address: 3B, change the data and adjust the average value of the DSS displayed data (Note 2) to the B ratio specified value.
10) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 0, address: 03, and set data: 00.
2) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: D, address: 11, set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.
5) Perform "White Balance Check".

13. White Balance Check

Subject	Clear chart (Color bar chart standard picture frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	VIDEO output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-4-6. (A) to (C)

Switch setting:

1) NIGHT SHOT switch ..... OFF

Checking method:

1) Check that the lens is not covered with either filter.
2) Select page: 2, address: 01, set data: 0F, and press the PAUSE button of the adjusting remote commander.
3) Check that the center of the white luminance point is within the circle shown Fig. 5-4-6 (A).
4) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Select page: 2, address: 01, set data: 23, and press the PAUSE button of the adjusting remote commander.
6) Place the C14 filter on the lens.
7) Check that the center of the white luminance point settles in the circle shown Fig. 5-4-6 (B).
8) Remove the C14 filter, and place the ND filter 1.3 (1.0 + 0.3) on the lens.
9) Check that the white luminance point stopped moving, and then remove the ND filter 1.3.
10) Check that the center of the white luminance point settles within the circle shown Fig. 5-4-6 (C).

Processing after Completing Adjustments:

1) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.

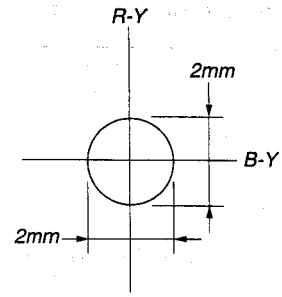


Fig. 5-4-6 (A)

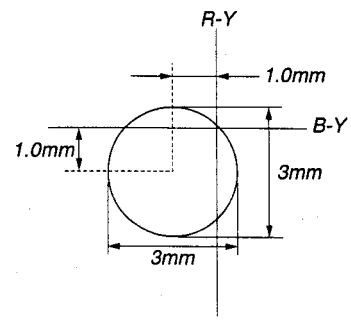


Fig. 5-4-6 (B)

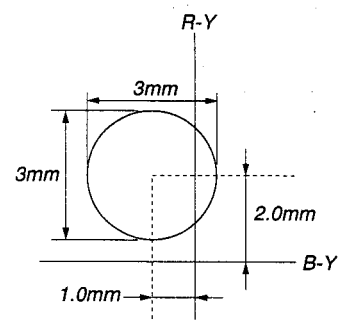


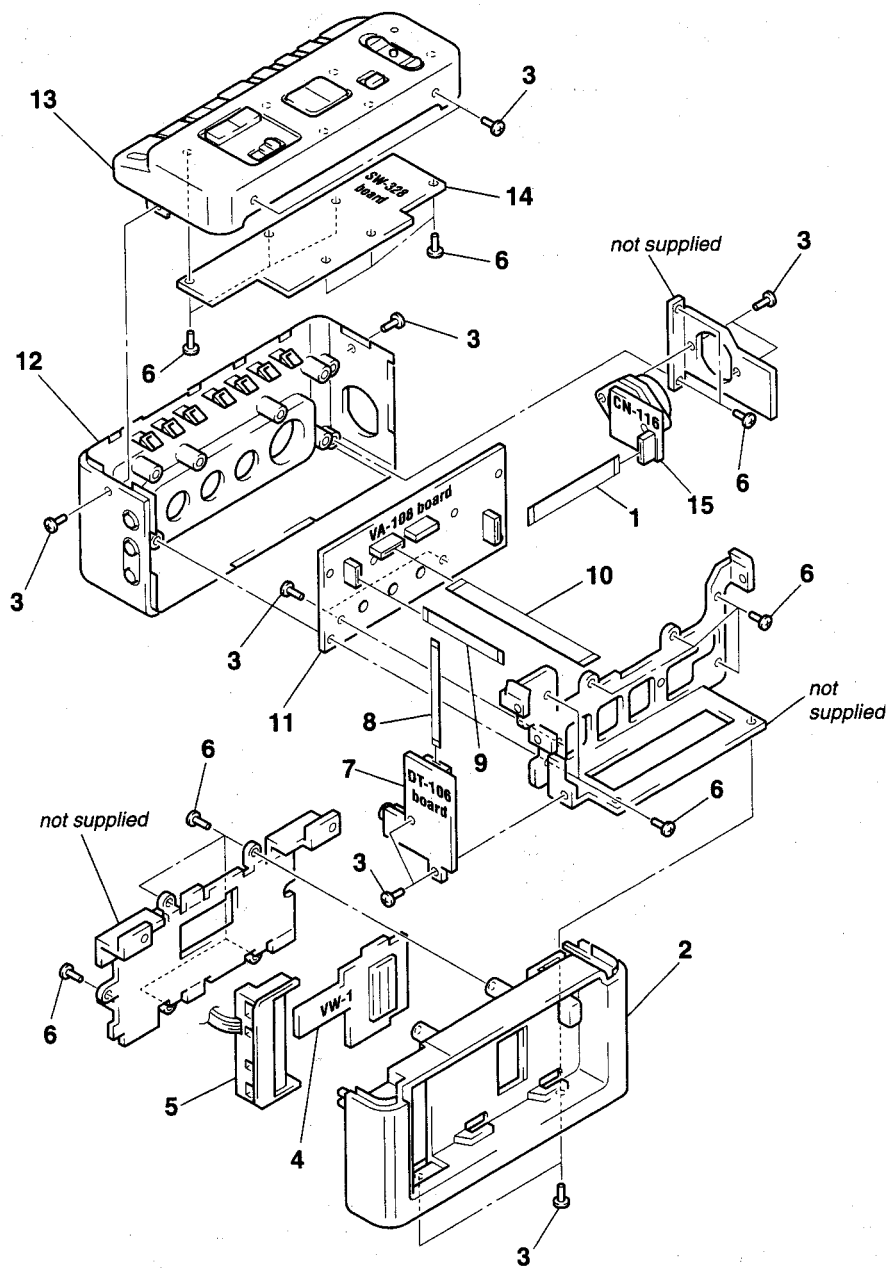
Fig. 5-4-6 (C)

SECTION 6
REPAIR PARTS LIST

6-1. EXPLODED VIEWS

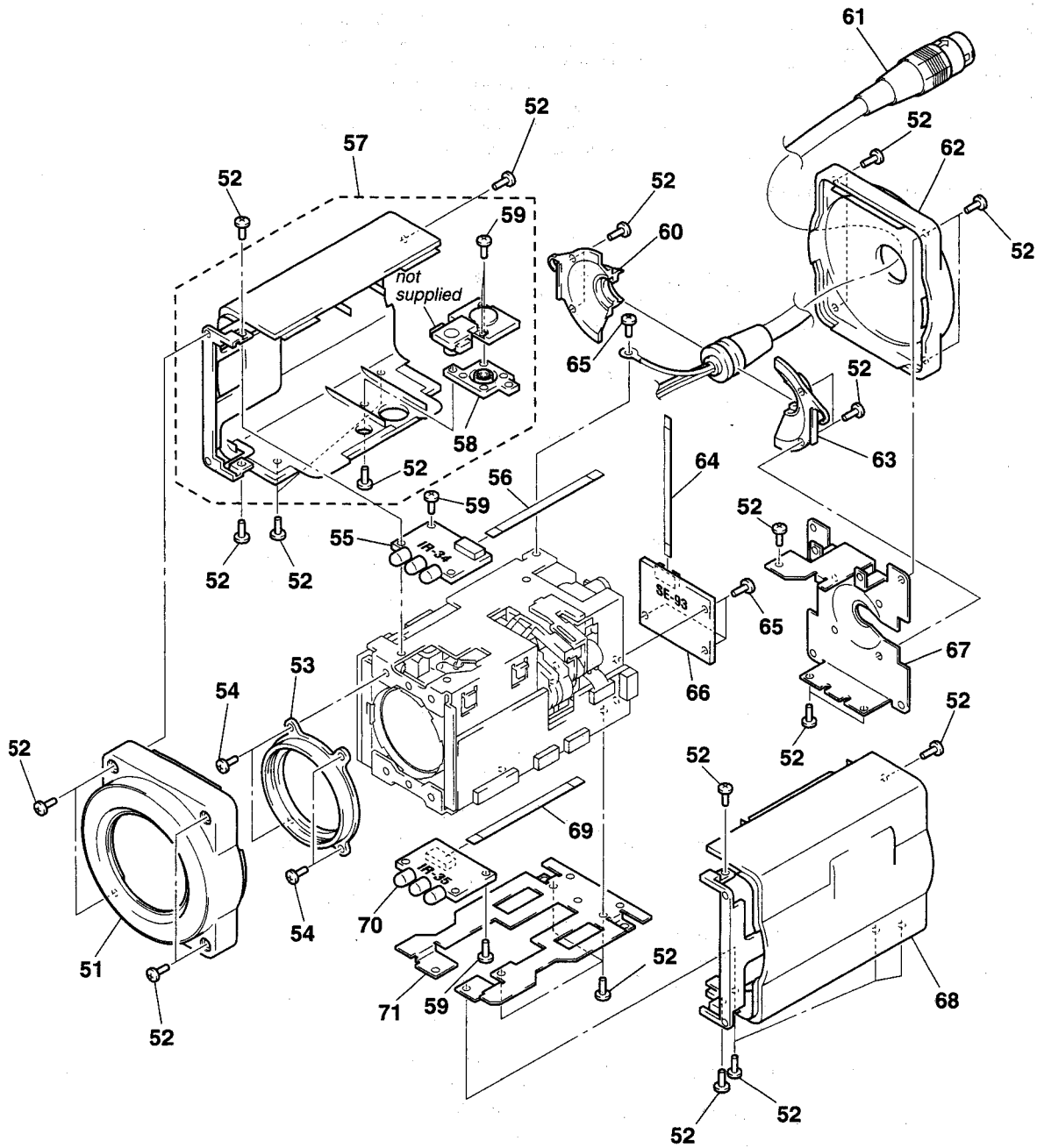
NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.

6-1-1. MAIN UNIT SECTION



Ref. No.	Part No.	Description	Remark
1	1-790-705-11	CABLE, FLEXIBLE FLAT (FFC-274)	
2	X-3949-606-1	CABINET (BACK) ASSY	
3	3-968-729-01	SCREW(M2), LOCK ACE, P2	
4	A-7073-988-A	VW-1BOARD, COMPLETE	
5	1-694-076-21	TERMINAL BOARD, BATTERY	
6	3-948-339-61	TAPPING	
7	A-7073-987-A	DT-106 BOARD, COMPLETE	
8	1-790-703-11	CABLE, FLEXIBLE FLAT (FFC-272)	
9	1-790-704-11	CABLE, FLEXIBLE FLAT (FFC-273)	
10	1-790-706-11	CABLE, FLEXIBLE FLAT (FFC-275)	
11	A-7073-985-A	VA-108 BOARD, COMPLETE	
12	X-3949-605-1	CABINET (FRONT) ASSY	
13	X-3949-604-1	CABINET (UPPER) ASSY	
14	A-7073-984-A	SW-328 BOARD, COMPLETE	
15	A-7073-986-A	CN-116 BOARD, COMPLETE	

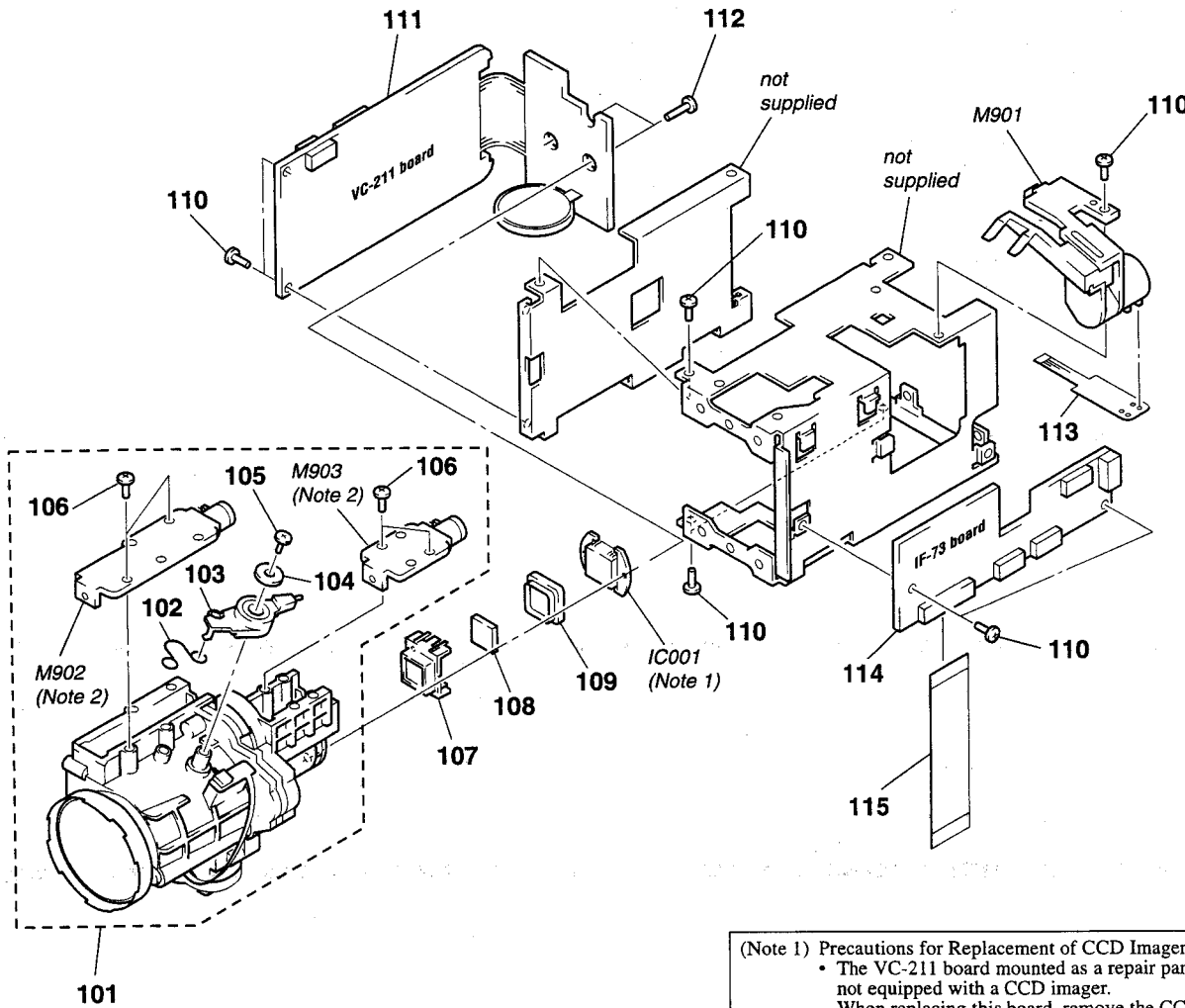
6-1-2. CAMERA HEAD SECTION-1



Ref. No.	Part No.	Description	Remark
51	X-3949-607-1	CABINET (F) ASSY	
52	3-968-729-71	SCREW (M2), LOCK ACE, P2	
* 53	3-608-876-02	ADAPTOR, FILTER	
54	3-050-575-11	ACE(M2), BIND SCREW LOCK	
55	A-7073-992-A	IR-34 BOARD, COMPLETE	
56	1-790-256-11	CABLE, FLEXIBLE FLAT (FFC-264)	
57	X-3949-609-1	CABINET (L) ASSY	
58	3-958-286-01	SHEET METAL, TRIPOD	
59	3-968-729-21	SCREW (M2), LOCK ACE, P2	
60	3-055-159-01	HOLDER (L)	
61	1-790-726-11	CODE, CONNECTION	

Ref. No.	Part No.	Description	Remark
62	X-3949-749-1	CABINET (B) ASSY	
63	3-055-148-01	HOLDER (R)	
64	1-782-690-11	CABLE, FLEXIBLE FLAT (FFC-219)	
65	3-968-729-51	SCREW (M2), LOCK ACE, P2	
66	A-7073-991-A	SE-93 BOARD, COMPLETE	
* 67	3-055-149-01	BRACKET, BB	
68	X-3949-608-1	CABINET (R) ASSY (CVX-V18NS)	
68	X-3949-635-1	CABINET (R) ASSY (CVX-V18NSP)	
69	1-790-767-11	CABLE, FLEXIBLE FLAT (FFC-280)	
70	A-7073-993-A	IR-35 BOARD, COMPLETE	
* 71	3-055-150-01	FRAME, TRIPOD	

6-1-3. CAMERA HEAD SECTION-2



(Note 1) Precautions for Replacement of CCD Imager
- The VC-211 board mounted as a repair part is not equipped with a CCD imager. When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC. In addition, ensure that the receiver is not cov ered with dusts nor exposed to strong light.

(Note 2) Flexible board of lens device is not supplied. Please be careful not break the flexible board when you change the motor unit.

Ref. No.	Part No.	Description	Remark
101	8-848-722-01	DEVICE, LENS LSV-600A (SOC)	
102	3-979-037-11	SPRING, RETURN	
103	3-979-029-01	LEVER, IR	
104	2-327-405-01	WASHER	
105	2-623-756-21	SCREW (B1.7X5), P	
106	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
107	3-978-981-11	ADAPTOR (FK), CCD FITTING	
108	1-758-084-21	FILTER BLOCK, OPTICAL (OFB-04-11)	
109	3-968-054-11	RUBBER (FM), SHIELD	
110	3-968-729-51	SCREW (M2), LOCK ACE, P2	
111	A-7094-503-A	VC-211 BOARD, COMPLETE (CVX-V18NS)	

Ref. No.	Part No.	Description	Remark
111	A-7094-504-A	VC-211 BOARD, COMPLETE (CVX-V18NSP)	
112	3-318-203-11	SCREW (B1.7X6), TAPPING	
113	1-672-209-11	FP-64 FLEXIBL BOARD	
114	A-7073-990-A	IF-73 BOARD, COMPLETE	
115	1-790-255-11	CABLE, FLEXIBLE FLAT (FFC-262)	
IC001	A-7030-865-A	CCD BLOCK ASSY (CVX-V18NS) (Note 1)	
IC001	A-7030-871-A	CCD BLOCK ASSY (CVX-V18NSP) (Note 1)	
M901	1-763-206-11	MOTOR (IR USE)	
M902	1-763-047-11	MOTOR, FOCUS STEPPING (Note 2)	
M903	1-763-046-11	MOTOR, ZOOM STEPPING (Note 2)	

CN-116 **DT-106** **IF-73** **IR-34** **IR-35** **SE-93** **SW-328** **VA-108** **VC-211**

6-2. ELECTRICAL PARTS LIST

When indicating parts by reference number, please include the board.

NOTE:

Only connectors are listed because mounted boards are replaced to repair this model.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. . : μPB. . uPC. . : μPC. .
  uPD. . : μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH

Ref. No.	Part No.	Description	Remark
	A-7073-986-A	CN-116 BOARD, COMPLETE	
		**********	
		< CONNECTOR >	
CN990	1-779-331-11	CONNECTOR, FFC/FPC 14P	
CN991	1-565-065-11	SOCKET 12P	
	A-7073-987-A	DT-106 BOARD, COMPLETE	
		**********	
		< CONNECTOR >	
CN995	1-784-858-21	CONNECTOR, FFC (LIF (NON-ZIF)) 6P	
CN996	1-691-348-11	CONNECTOR, FFC/FPC (ZIF) 10P	
	A-7073-990-A	IF-73 BOARD, COMPLETE	
		**********	
		< CONNECTOR >	
CN1801	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN1802	1-766-360-21	CONNECTOR, FFC/FPC 30P	
CN1803	1-569-775-11	PIN, CONNECTOR (SMD) 5P	
CN1805	1-766-337-21	CONNECTOR, FFC/FPC 7P	
	A-7073-992-A	IR-34 BOARD, COMPLETE	
		**********	
		< CONNECTOR >	
CN090	1-573-347-11	CONNECTOR, FFC/FPC (ZIF) 7P	
	A-7073-993-A	IR-35 BOARD, COMPLETE	
		**********	
		< CONNECTOR >	
CN1090	1-573-347-11	CONNECTOR, FFC/FPC (ZIF) 7P	

Ref. No.	Part No.	Description	Remark
	A-7073-991-A	SE-93 BOARD, COMPLETE	
		**********	
		< CONNECTOR >	
CN050	1-766-336-21	CONNECTOR, FFC/FPC 6P	
	A-7073-984-A	SW-328 BOARD, COMPLETE	
		**********	
		< CONNECTOR >	
* CN941	1-778-867-11	CONNECTOR, FFC/FPC 6P	
	A-7073-985-A	VA-108 BOARD, COMPLETE	
		**********	
		< CONNECTOR >	
* CN881	1-573-768-21	PIN, CONNECTOR (1.5mm) (SMD) 5P	
CN882	1-779-332-11	CONNECTOR, FFC/FPC 16P	
CN883	1-779-331-11	CONNECTOR, FFC/FPC 14P	
CN884	1-779-329-11	CONNECTOR, FFC/FPC 10P	
	A-7094-503-A	VC-211 BOARD, COMPLETE (CVX-V18NS)	
	A-7094-504-A	VC-211 BOARD, COMPLETE (CVX-V18NSP)	
		**********	
		< CONNECTOR >	
* CN301	1-580-789-21	PIN, CONNECTOR (SMD) 6P	
CN401	1-766-353-21	CONNECTOR, FFC/FPC 23P	
* CN501	1-580-055-21	PIN, CONNECTOR (SMD) 2P	
CN502	1-766-337-21	CONNECTOR, FFC/FPC 7P	
CN601	1-766-336-21	CONNECTOR, FFC/FPC 6P	
CN703	1-766-360-21	CONNECTOR, FFC/FPC 30P	
CN704	1-764-705-11	CONNECTOR, FFC/FPC (LIF) 6P	

Ref. No.	Part No.	Description	Remark
	A-7073-988-A	VW-1 BOARD, COMPLETE	
		**********	
		< CONNECTOR >	
CN901	1-766-346-21	CONNECTOR, FFC/FPC 16P	
CN902	1-537-439-31	TARMINAL BOARD, CONNECTOR	
		MISCELLANEOUS	
		**********	
1	1-790-705-11	CABLE, FLEXIBLE FLAT (FFC-274)	
5	1-694-076-21	TERMINAL BOARD, BATTERY	
8	1-790-703-11	CABLE, FLEXIBLE FLAT (FFC-272)	
9	1-790-704-11	CABLE, FLEXIBLE FLAT (FFC-273)	
10	1-790-706-11	CABLE, FLEXIBLE FLAT (FFC-275)	
56	1-790-256-11	CABLE, FLEXIBLE FLAT (FFC-264)	
61	1-790-726-11	CODE, CONNECTION	
64	1-782-690-11	CABLE, FLEXIBLE FLAT (FFC-219)	
69	1-790-767-11	CABLE, FLEXIBLE FLAT (FFC-280)	
101	8-848-722-01	DEVICE, LENS LSV-600A (SOC)	
108	1-758-084-21	FILTER BLOCK, OPTICAL (OFB-04-11)	
113	1-672-209-11	FP-64 FLEXIBL BOARD	
115	1-790-255-11	CABLE, FLEXIBLE FLAT (FFC-262)	
IC001	A-7030-865-A	CCD BLOCK ASSY (CVX-V18NS) (Note 1)	
IC001	A-7030-871-A	CCD BLOCK ASSY (CVX-V18NSP) (Note 1)	
M901	1-763-206-11	MOTOR (IR USE)	
M902	1-763-047-11	MOTOR, FOCUS STEPPING (Note 2)	
M903	1-763-046-11	MOTOR, ZOOM STEPPING (Note 2)	

ACCESSORIES & PACKING MATERIALS
****

1-784-838-21	ADAPTOR, CONNECTION (Refer to page 1-1)	
3-866-417-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH)	
3-866-417-21	MANUAL, INSTRUCTION (GERMAN, ITALIAN)	(CVX-V18NSP)

(Note 1) Precautions for Replacement of CCD Imager
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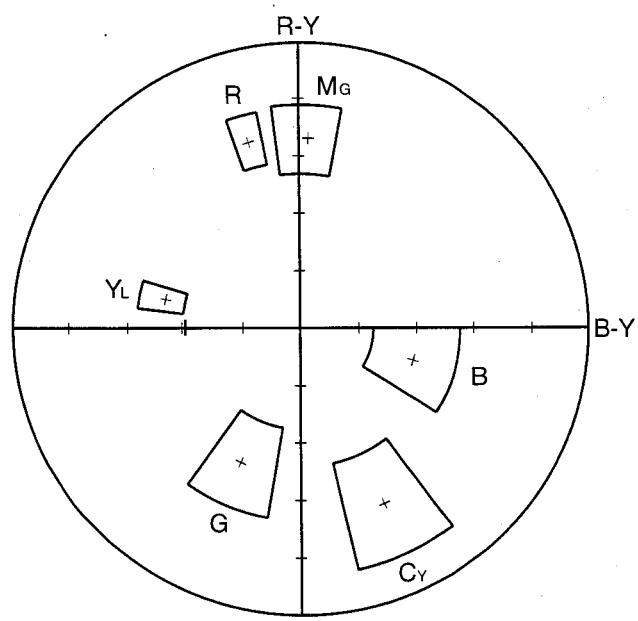
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC. In addition, ensure that the receiver is not cov ered with dusts nor exposed to strong light.

(Note 2) Flexible board of lens device is not supplied. Please be careful not break the flexible board when you change the motor unit.

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

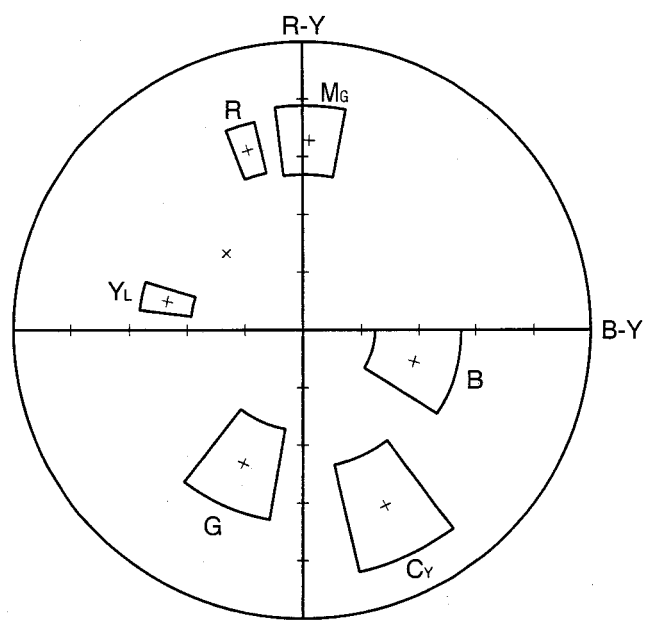
Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

For NTSC model



CVX-V18NS

For PAL model



CVX-V18NSP